

# **THE CLASSICAL ARCHITECTURES OF ANCIENT GREECE AND TRADITIONAL CHINA**

A Comparative Study of  
the Parthenon and the Taihe Dian

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# 中西方古典建築藝術的內涵

雅典衛城帕提農神廟和  
北京故宮太和殿的比較研究

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博士論文

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## **DECLARATION**

This thesis has been composed by myself and is my own original work

Ke-Shi Chen

# ABSTRACT

A comparison is made of two types of classical architecture, Classical Western Architecture (CWA) and Classical Chinese Architecture (CCA). Two major buildings, the Parthenon (built 447 - 432 BC) on the Acropolis at Athens and the Taihe Dian in the Forbidden City (built 1407 -1421) at Beijing are used as exemplars. The study reveals many similarities in the development and treatment of the two types of classical architecture, in spite of the very different cultural worlds from which they emerged.

After examining the major characteristics of the two examples, the enquiry concentrates on the question of the origin and meaning of architectural treatment in both CWA and CCA, through a detailed study of the Parthenon and the Taihe Dian. It is argued that the treatment of space, form and decoration in both buildings has its origins in cosmic symbolism; that the notion of a Centre is expressed by their high and central location, axial symmetry, and centripetal theme; that the notion of a Sacred Space is expressed by an enclosed and ordered space; that qualities attributed to the dedicatee (Athena in the Parthenon and the Chinese emperor in the Taihe Dian) are expressed by the exterior form of the buildings; and that the inclinations, curvatures and proportions in the treatment of the exterior form have to do with the expression of certain qualities of the dedicatee, as do their refinements. Finally myths, legends, sacrifices and ceremonial processions, illustrated by the static decoration, architectural sculptures, reliefs, paintings and ornaments are examined. Through comparisons between the two examples, an exploration is made as to why and how such remarkable spaces, forms and decorations were created in both CWA and CCA.

The factual analysis of the evidence - the details of the Parthenon and the Taihe Dian - supports a number of hypotheses applied to both buildings, and, by extension, to both CCA and CWA. That cosmosised buildings were commonplace in China is well known, but this is not so of Greece. In the conventional view, Greek temple architecture does not display cosmological symbolism. Although this does not mean that the Parthenon cannot be interpreted in the same way as the Taihe Dian, it inevitably introduces a degree of asymmetry in the relation between the treatment of the buildings and documentary evidence. The study of architectural characteristics and expression, exemplified in two especially notable buildings, and an examination of the relationship between cosmos and architecture, shed light on the nature of classical architecture.

# ACKNOWLEDGEMENTS

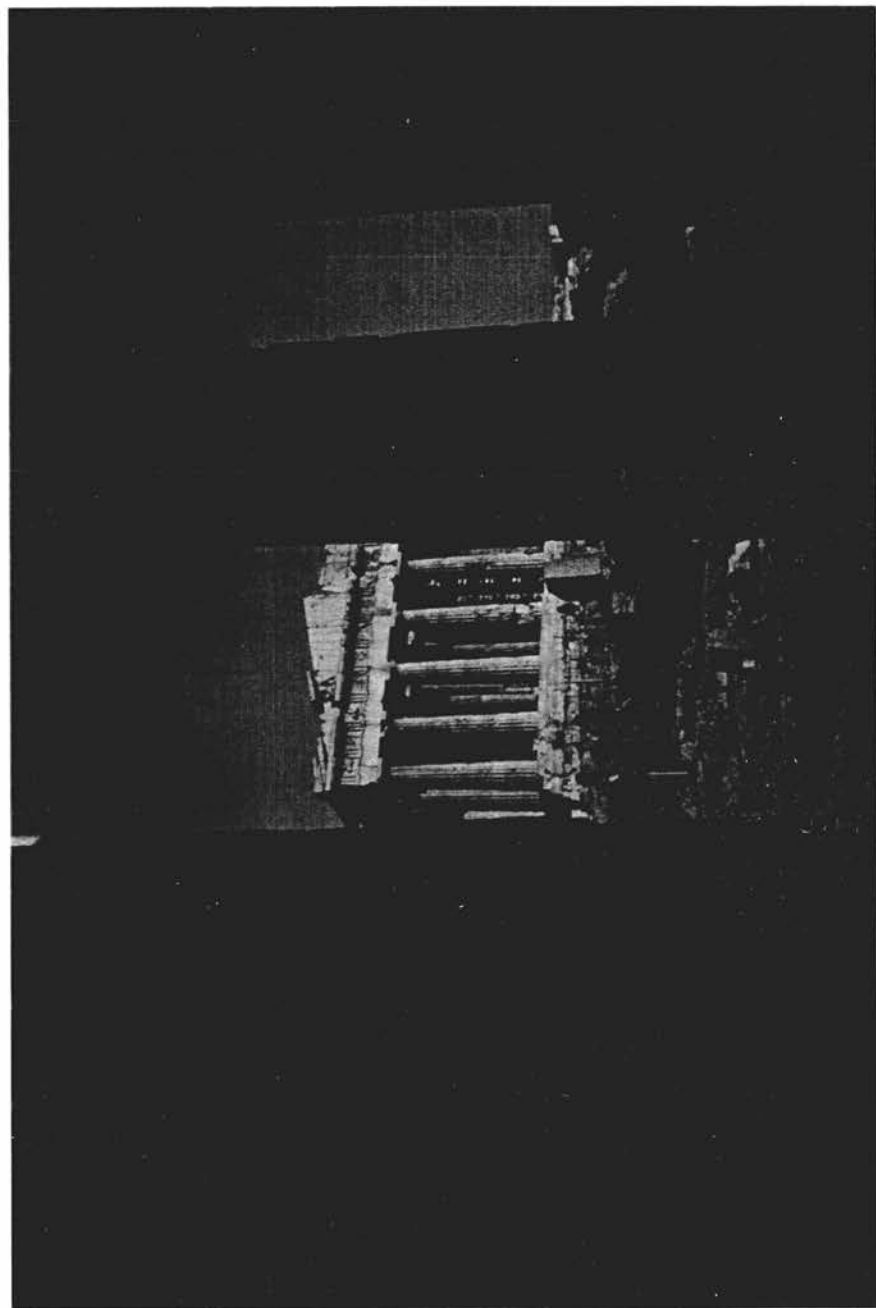
The basic idea of this thesis originated during the course work for my M.Arch. in Qinghua University in Beijing from 1985-1988 when I was involved in a large project, a modern hotel designed in the traditional style. I would like to take this opportunity to thank Professor W.Y.Wang 王煒鈺 who supervised my work during this period.

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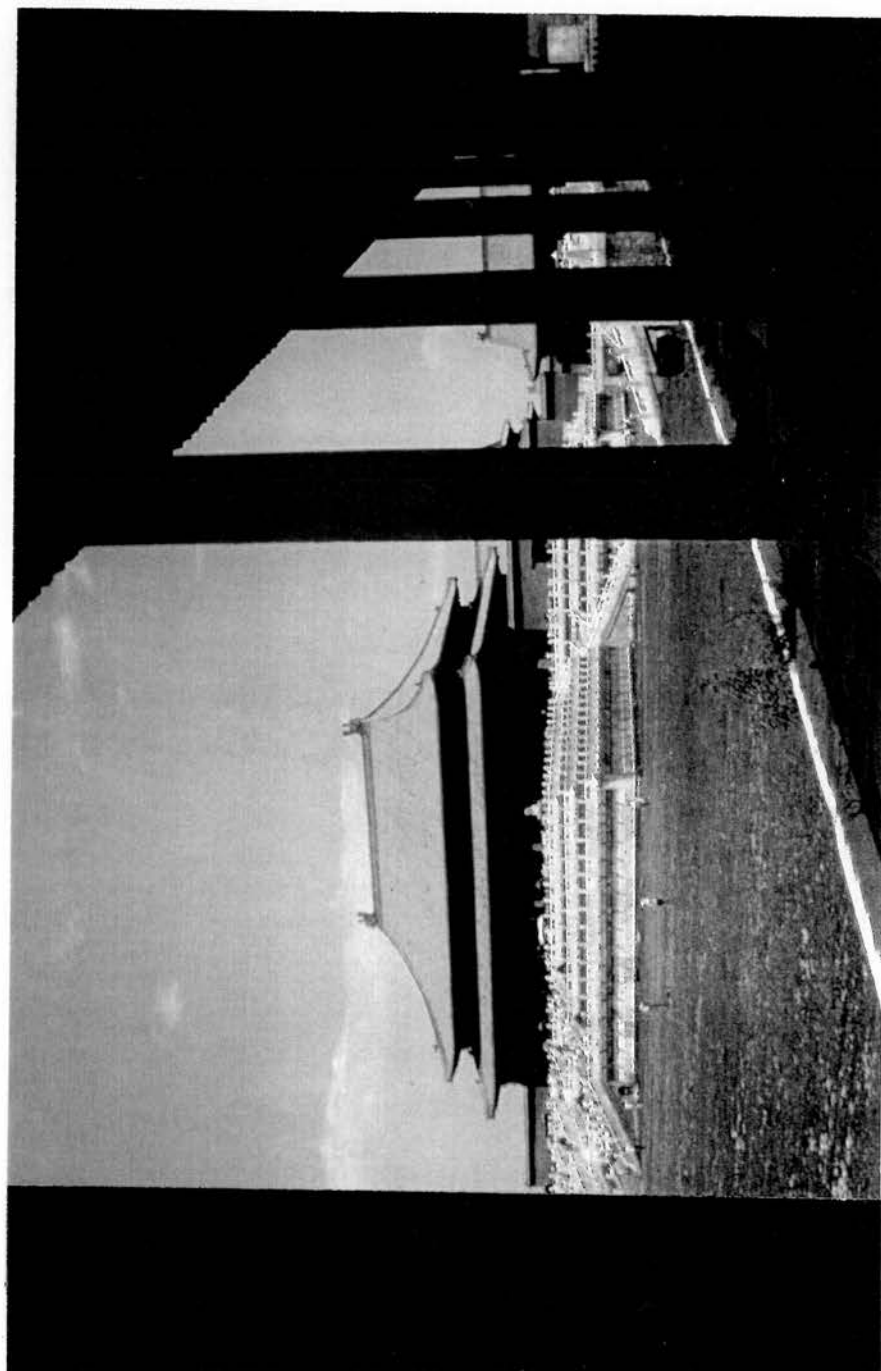
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The Parthenon viewed from the gate-house of the Acropolis, the Propylaea, 1990



The Taihe Dian viewed from the flank gallery of the courtyard, 1990

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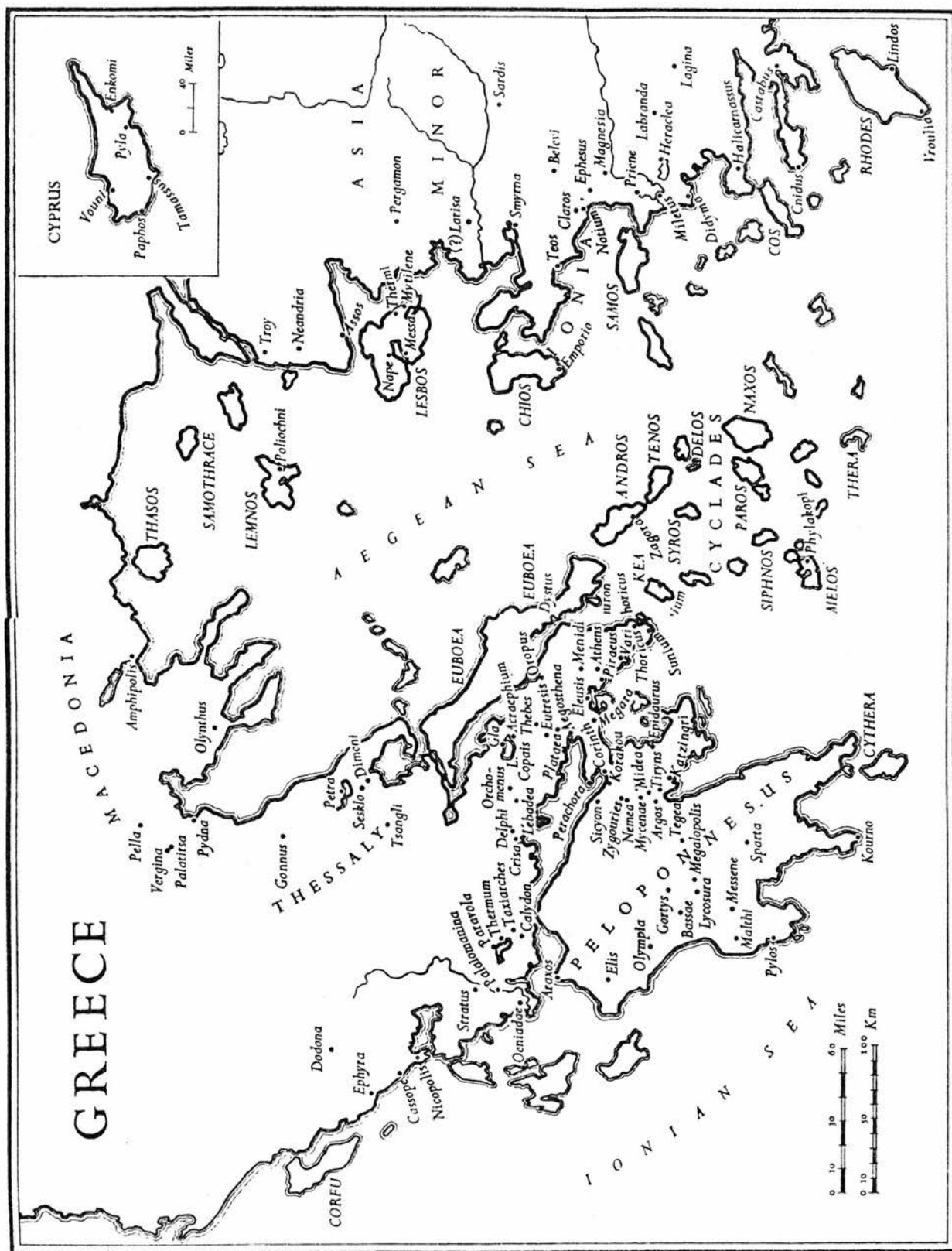
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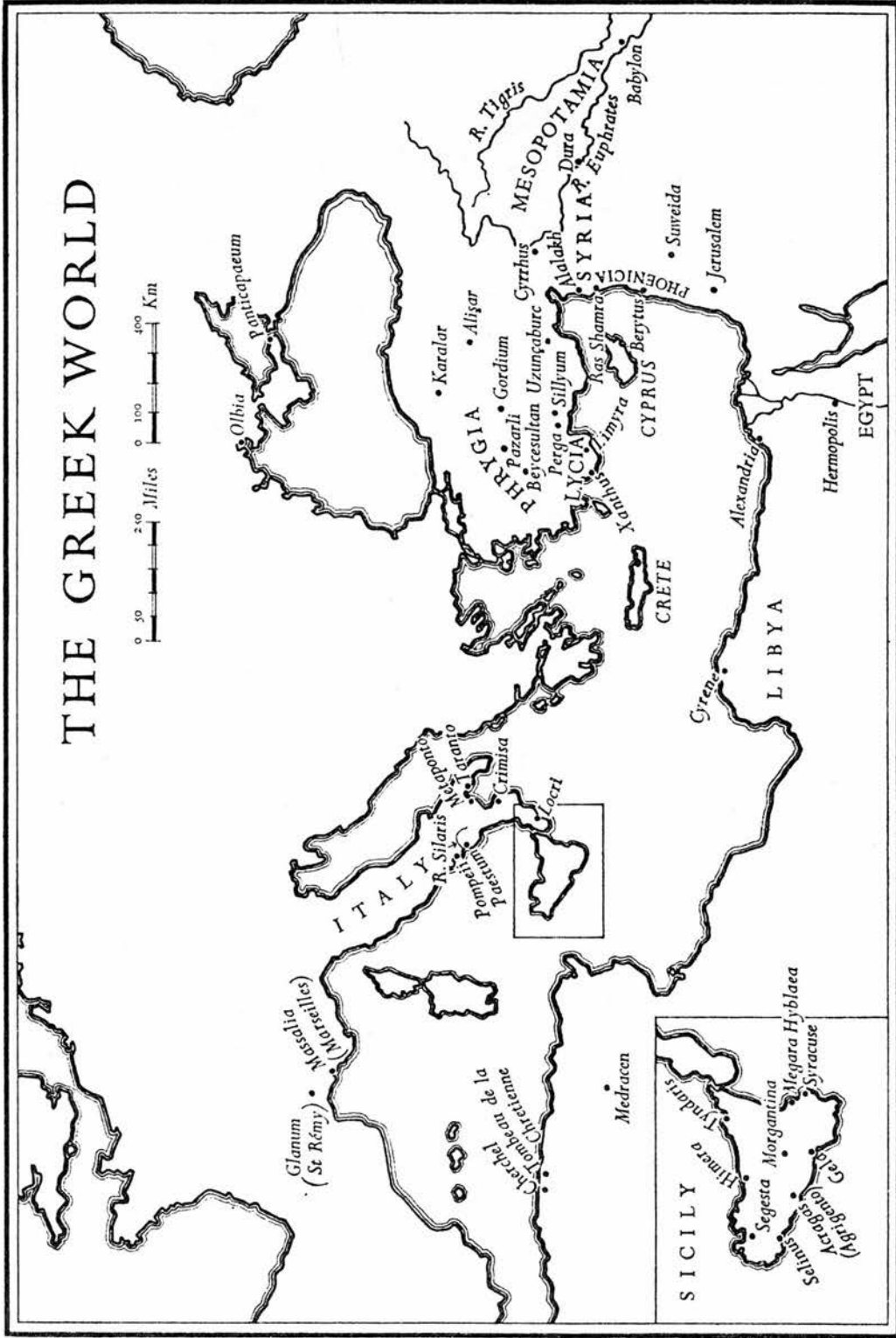
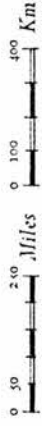
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# THE GREEK WORLD

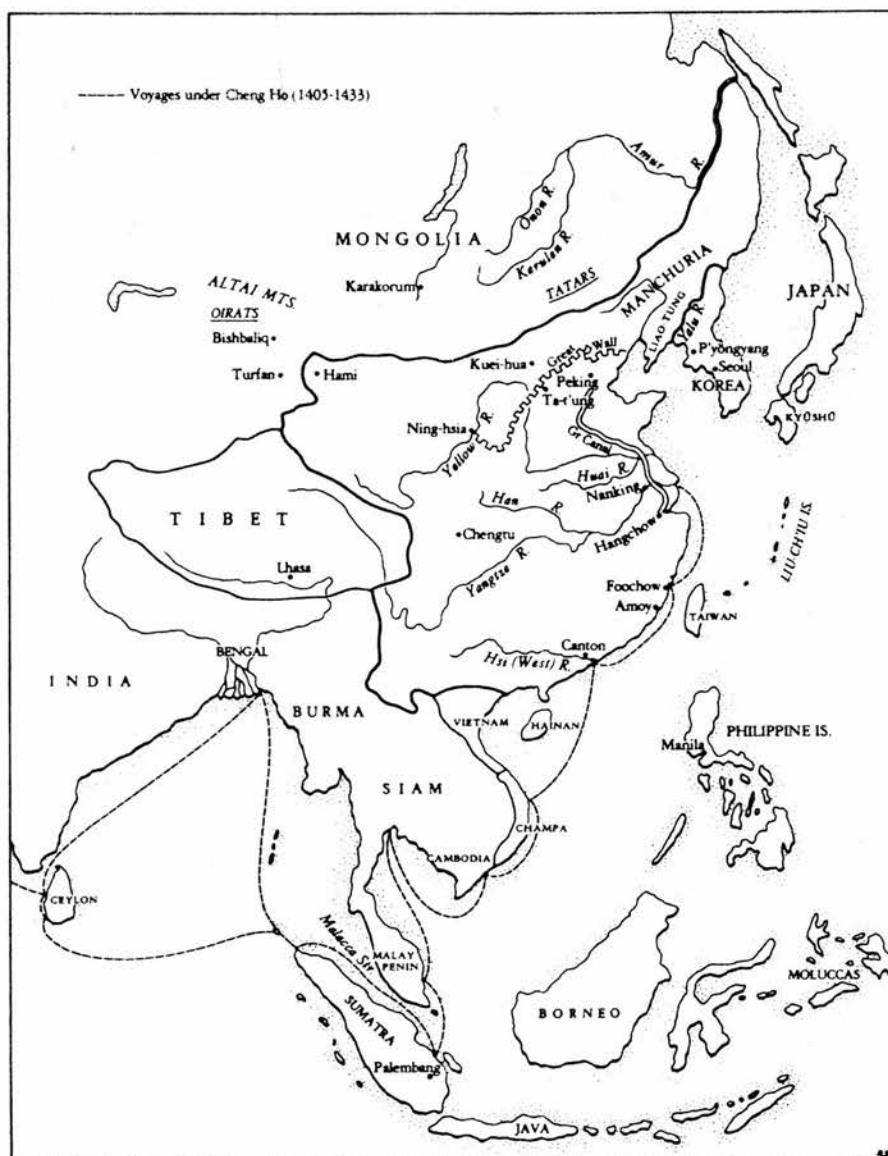


Map ii ----- MAP OF THE GREEK WORLD (from Lawrence, A., 1967)



Map iii ----- MAP OF CHINA UNDER THE MING (from Fairbank, J.K., 1984)





Map iv ----- MAP OF THE MING EMPIRE AND ITS FOREIGN RELATIONS

(from Fairbank, J.K., 1984)

# INTRODUCTION

This is a comparative study of Classical Western Architecture (CWA) and Classical Chinese Architecture (CCA). For many years I have been fascinated by the fact that there are many similarities in architectural treatment in CWA and CCA, in spite of the very different cultural worlds from which they emerged. A high platform or terrace, a horizontal axis, a centripetal theme, an enclosed and ordered space, a symmetrical elevation, and a degree of refinement can be seen in the buildings in both CWA and CCA. These similarities in treatment in the two types of classical architecture suggest that certain properties, functions and symbolism were independent of the particular nature of the civilisation from which they emerged. The origin and meaning of those remarkable architectural spaces, forms and decorations in CWA and CCA can be explored on a comparative basis for they have important features in common.

CWA here refers mainly to Greek temple architecture, but conventionally it also includes the religious, military and civil buildings of Imperial Rome, and, as a legacy from the Romans, buildings of the same tradition throughout the whole of the western world in the five centuries between the Renaissance and the end of the nineteenth century. In our study, we shall focus on the Greek temples, and especially on the Parthenon, for the fundamental characteristics of CWA have been found in them. Classical Chinese Architecture (CCA) is perhaps an unfamiliar term to most western scholars. It was first used by Chinese scholars

who studied architecture in the West and in Japan before the second World War.<sup>1</sup> CCA here means traditional palace, temple and civil architecture in China. It is typified in royal palaces and tombs, Buddhist, Taoist and Confucian temples, and in public buildings. Here we shall focus on the Chinese palaces and Buddhist temples, and especially on the building called Taihe Dian.

Concentrating on two buildings, the Parthenon and the Taihe Dian, the study is carried out by making a detailed comparison of these two buildings, one from each architecture, each chosen as being an exemplar. The Parthenon is the finest example of Greek temple architecture. It was erected on the Acropolis in Athens between 447 and 432 BC, in the time of Pericles, for housing the large cult statue of Athena. The temple was dedicated to the goddess. The Taihe Dian was built between AD 1407 and 1421. It was the main hall of the Forbidden City, the royal palace of the *Ming dynasty* 明朝 (1363 - 1644) and *Qing dynasty* 清朝 (1644-1911). It was the most important building in the Forbidden City and was used only for a few of the most important ceremonies and celebrations, such as emperor's birthday, the crowning and the Chinese New Year celebrations. The great hall was attributed to only the emperor, the son of heaven. He was in charge of the rituals and celebrations. It was he who accepted messages from heaven, and established order on earth. These two buildings are chosen as the exemplars for the comparative study because they were of similar importance in their respective cultural worlds; both of them being ritual buildings; and both representing the head-of-state. Although the Taihe Dian was built more than eighteen centuries after the Parthenon, and was a palace building, and not a temple, both buildings played a similar role in the political and religious life of the people, for they were established as settings for the most important national rituals and ceremonies. Many striking similarities have been found in these two especially notable buildings.

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<sup>1</sup> For example, *Liang Sicheng* 梁思成 and *Liu Dunzhen* 劉敦楨 in their works had used CCA to mean Chinese palace, royal tomb, religious and civil architecture. *Laurence G. Liu* in his book 'Chinese architecture' used CCA in the second chapter, 'The Character and Meaning of Classical Chinese Architecture'. There CCA means traditional Chinese palace and religious architecture.

In the first chapter we define CWA and CCA, describe their origins, and begin an account of their methods of construction, and of their three major characteristics of independence, basic form and Order. Greek temple architecture reached maturity in the early Hellenic period (650-323 BC), which was marked by the appearance of the Orders, of the three column-styles; and approached perfection in the middle of the fifth century BC with the application of refinement. It had launched the western world into a major architectural language which has lasted for two and a half millennia. CCA reached maturity between the sixth and the third centuries BC, a period marked by the appearance of different types of roof-style; and it approached perfection between the seventh and the tenth century AD, a time also marked by the application of refinement. CWA and CCA use completely different structures and materials, but have similar ideas on architectural treatment, such as independence, basic form and order. In both cases, the individual building, without relation to other buildings, is a complete unit in form, and plays a separate role in the complex. There is a basic form, which is a three-bay prostyle building with a closed interior space. Then there are three different column-styles in Greek temple architecture: Doric, Ionic and Corinthian; and five different roof-styles in CCA: *Wudian* 廡殿 (hip roof), *Xieshan* 歇山 (hip and gable roof), *Xuanshan* 懸山 (overhanging gable roof), *Yingshan* 硬山 (gable roof) and *Cuanjian* 攢尖 (conical roof). The three column-styles in Greek temple architecture and the five roof-styles in CCA work as Orders which express different aesthetic tastes. The first chapter gives a general description of the two types of classical architecture. The common characteristics of the architectures have produced a basis for comparison.

In the second chapter we deal with the religious, cultural, political, and historical backgrounds of our two exemplars, the Parthenon and the Taihe Dian, and describe in detail the treatment of space, form and decoration in the two buildings. The historical and cultural contexts of the two buildings were very different. Athens during the time of the building the Parthenon was a leading Greek state, and male citizens participated in the

government of the city, called the 'polis'. The Parthenon was a setting for the festivals which were the focus of political culture. The Taihe Dian, with the Forbidden City, was built as a royal palace, as well as an administrative centre of the country. Rituals and celebrations were held in the palace for establishing harmony between Heaven and Earth. However, the two buildings were built for both political and religious reasons. Their dedicatees, Athena and the *Ming* Emperor, were the heart and spirit of the whole population. A description of the cultural backgrounds and a study of the architectural treatment of both buildings offers a field for research. The two buildings came from two completely different worlds, Hellenic Greece and *Ming* China.

Many similarities in architectural treatment in the Parthenon and the Taihe Dian emerge in the second chapter. The two buildings have a high and central location; a horizontal axis; and a centripetal theme in the treatment of space, form and decoration. Their interior spaces are enclosed and cuboid. Inclination, curvature and proportion in the elements of the exterior form of the two buildings distinguish them from others. Refinement is found in the entasis and tapering of the columns and walls, which incline inwards and upwards; in the Parthenon's horizontal lines, stylobate, architraves, and cornices, all of which sag slightly in the middle and have convex outlines; and in the Taihe Dian's horizontal lines of elevation, the long curved eaves and architrave, which droop in the middle and turn upwards and outwards at each corner. Finally, myths, legends and sacrifices are represented in the polychrome painted sculptures, reliefs and ornaments in the two buildings.

A comparison of location, space, form and decoration in the two architectures, simply at the 'external' level of appearance, would not allow any interpretation in terms of meaning, and would produce very little of interest, for it could speak only of 'what', never of 'why'. So, from the third chapter we expand our inquiry to the question of why there are so many similarities in the treatment of CWA and CCA. To answer this question, we need to explore what is expressed in the treatment of space, form and decoration, and how it is expressed. This means that architectural treatment in both CWA and CCA can be interpreted as having



some significance; and we shall find that there is a 'cosmic function'. The treatment of location, space, form and decoration in the Parthenon and in the Taihe Dian expresses the builders' own cosmic views. There is a link between architecture and the cosmos.

A trans-cultural or universal basis is needed for a comparison between the Parthenon and the Taihe Dian. We suggest that the architectural treatment of the two buildings - their high and centred location, horizontal axes, centripetal theme, and enclosed and ordered space - has to do with the notion of a Centre, a Sacred Space, and 'cosmosization'. Some ideas of Mircea Eliade are introduced here. He argued that certain basic features of architecture are extremely widespread in ancient and traditional societies, and that architecture for such societies fulfils a symbolic function which in its essentials is independent of any particular society and culture. All such societies have to create an order - a cosmos - within which to live.<sup>2</sup> The creation of architectural space, form and decoration is seen in a cosmic context.

In the third chapter we examine three important characteristics of CWA and CCA: central and high location, horizontal axis and centripetal theme. The notion of the Centre postulated by Eliade is introduced here. That both the Parthenon and the Taihe Dian are placed upon a high platform and terrace (or a hill) and located at the centre of a complex implies that they are situated on the summit of the cosmic mountain and at the centre of the world. The horizontal axis is the way towards the Centre. Centripetal treatment in space, form and decoration indicates the existence of a Centre. These architectural treatments show that the two buildings are Centres. This hypothesis explains why these three characteristics of CWA and CCA exist.

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<sup>2</sup> Mircea Eliade (1907-1986) was an American historian of religion. "In his lifelong quest to understand the presence of the Sacred throughout human history, Eliade was fascinated by two central themes: Creation and Time. He examined the temporal structures and meanings of cosmogonic myths and rituals of initiation. His writings begin and end with an attempt to understand Creation and Time. .... As a writer, he is an artist: one who creates an aesthetic interpretation of reality which allows for the temporary suspension of the traditional sense of time and space." Dian Apostolos-Cappadona, "Introduction: Mircea Eliade: The Scholar as Artist, Critic, and Poet," in Eliade, Mircea, *Symbolism, the Sacred, and the Arts*, (edited by Diane Apostolos-Cappadona), (Crossroad, New York, 1986) pxi.

In the fourth chapter we examine interior space in both CWA and CCA, and discuss the notion of the Sacred Space described by Eliade. The interior space of the Parthenon and of the Taihe Dian is enclosed and ordered. It is encircled by the wall and roof which separate it from the outside. This expresses the Sacred Space's separation from the profane. The wall and roof enclose a cuboid space inside the building, and this signifies the presence of a Sacred Space. The four orientations of the Sacred Space are indicated by the wall of rectangular plan. The most important direction is marked by the doorway and portico. The gallery between the interior and the exterior is a transitional space between the sacred world and the profane. These architectural treatments of the two buildings make the interior spaces sacred. This explains why an enclosed and ordered space is created in both CWA and CCA .

In the fifth chapter we examine the exterior form of classical buildings, and suggest that certain qualities of the dedicatee are expressed in the exterior form in both CWA and CCA. Those qualities of the dedicatee are represented in differences in the inclination, curvature and proportions of the elements of the exterior form; in the roofs, pediments, capitals, columns and intercolumniation in the Parthenon and in the Taihe Dian. The form of the cult statue inside the building, and the form of the exterior of the building express some of the qualities of the dedicatee. This explains why a particular exterior form is created in both CWA and CCA.

In the sixth chapter, we examine the refinement used in the Parthenon and in the Taihe Dian, and discuss the meaning of refinement in Greek temples and in the buildings of CCA. Refinement in the Parthenon is employed on the stylobate, the architrave and the entablature, which rises slightly at the centre of each frontage; in the entasis and tapering of the columns; and in the slant of the columns and walls. In the Taihe Dian, it is used mainly in the 'horizontal' eaves and sloping ridges, which are convex in shape and sag in the middle; and in the entasis and tapering of the columns and the walls. The treatment of refinement in

both buildings is associated with the expression of certain qualities of the dedicatee. This hypothesis explains why refinement is used in both CWA and CCA.

In the seventh chapter, we examine decoration in the Parthenon and in the Taihe Dian, and discuss the subjects expressed by the polychrome painted sculptures, reliefs and ornaments in the two buildings. In the Parthenon, myths, legends, sacrifices and ceremonial processions are displayed in the decoration on the pediments, metopes and friezes. In the Taihe Dian, myths, legends and sacrifices are represented by symbolic animals, such as the dragon and the phoenix. In both cases, many motifs are used in the decoration: animal, botanical, and natural object. We suggest that subjects represented in the decoration have to do with communication, for the temples and the palaces are Centres, meeting-points of the three regions of heaven, earth and hell, where communication between man and the other world, the world of divines and ancestors, becomes possible. The rituals, ceremonies and celebrations held in both buildings play an important role in communication. This is also true of the decorations. It explains why sculptures, reliefs and ornaments are used in both CWA and CCA, and how their subjects are selected.

Finally, after a summary of the main conclusions, we assess how far our two major hypotheses are supported by these studies: that the two types of classical architecture do indeed display a number of common features in spite of the differences in the civilisations that produced them; and that the Parthenon and the Taihe Dian were expressions of the cosmic context. There is an identity between the cosmos and architecture; between the Sacred Mountain, the Centre, and the terrace with the platform, the horizontal axis and the centripetal theme; between the Sacred Space and the interior space; and between the cult image of the dedicatee and the building's exterior form. The identity discovered between the cosmos and architecture reveals how those remarkable spaces, forms and decorations were created, expressing the builders' understanding of the cosmos.



Much of the thesis is concerned with the hypothesis that architectural treatment in both CWA and CCA expresses a cosmic context: that the two buildings are on a high place and at the centre of the world; that their interior space is a 'sacred space'; that the refined exterior form of the buildings is a representation of the dedicatee; and that decorations are vehicles of communication.

We must acknowledge that it is more difficult to study expression in classical architecture than in the other arts, for the builders in ancient times did not leave any records which have survived about the conception and the development of the designs of the buildings. Without written evidence, it is perhaps impossible for us to read the minds of the builders of the Parthenon or of the Taihe Dian. The first difficulty we meet in our study is that the architectural worlds of ancient times are almost unknown, and that consequently analysis of the existing buildings becomes the main method of study. Another difficulty is the scale of the subject. As we know, CWA and CCA are two huge architectural systems. It is difficult to deal comprehensively with them, and we have limited our attention to two exemplars. Although the Parthenon and the Taihe Dian do not represent the two architectures in every detail, - far from it - nevertheless their essential features are found in these two.

In discussing CCA we have used some terms which are taken from CWA, such as 'antefix', 'acroterion', 'entasis' and 'refinement'. The concepts that we use concerning religion and cosmos are mainly borrowed from the works of Mircea Eliade. We must acknowledge that the introduction of cosmic symbolism inevitably suggests a lack of common ground in the two architectures we are examining. For instance, CCA has a long history of producing centred and cosmosised cities and buildings. There is a good deal of literature to support this view. China, in claiming to be 'the Middle Kingdom', claimed to be at the centre of the world and to be the mediator between Heaven and Earth. The ceremonial role of the Emperor and the ritual he had to perform with such precision were aimed at maintaining the harmony of Heaven and Earth. But one supposes this not to be the case

with Greece. Documentary evidence to show that Greek temple architecture had a cosmic context is less easy to find. Analysis of the architectural remains is needed. The usual views of Greek religion and architecture do not focus on cosmology and cosmic function. However, this need not mean that the Parthenon does not express a cosmic function and cannot be seen in a role similar to that of the Taihe Dian. The similarities in architectural treatment in the Parthenon and in the Taihe Dian may suggest that a similar significance is to be attached to both buildings. However, It is clear that much research remains to be done. Examination of the similarities in the treatment of the two buildings offers us an opportunity to see the common features of CWA and CCA. The exploration of the relationship between the cosmos and architecture helps to shed light on the nature of classical architecture.

## **Chapter I**

# **TWO TYPES OF CLASSICAL ARCHITECTURE**

The streets of most European cities have buildings which have some connection with Classical Western Architecture (CWA). We may say that it has been the main stem in the history of European architecture in the last two and a half millennia. Similarly, in China, Classical Chinese Architecture (CCA), with its traditional palaces, temples and civil buildings, is the main stem in the history of Chinese architecture. In this chapter, as a general introduction, we shall briefly give a definition of CWA and CCA, and describe their growth and development, methods of construction and major characteristics.

### **1.1 A few definitions of CWA and CCA**

Usually, we define a particular sort of architecture in terms of its region and use. For instance, we say 'temple' or 'palace', or 'Greek architecture' and 'Chinese architecture'. However, classical architecture has not been confined to one region or to one specific class of building. Classical Western Architecture mainly means Greek temple architecture and, traditionally, it also includes the religious, military and civil architectures of imperial Rome,

and, as a legacy from the Greeks and Romans, buildings in the same tradition in the whole of the western world, from the Renaissance until the end of the nineteenth century. So it was composed of a series of buildings, including famous ones such as the Treasury of the Athenians at Delphi (510 BC), the Parthenon at Athens (447-323 BC), the Pantheon (120-124), the Colosseum (70-82 AD), St. Peter's Cathedral at Rome (1506-1626), St Paul's Cathedral at London (1675), the Madeleine at Paris (1807), and perhaps the Lincoln Memorial at Washington (built in the early years of this century). Classical Chinese Architecture means traditional Chinese palace and temple architecture, and comprises royal palaces and tombs, Buddhist, Taoist and Confucian temples, and civil buildings of the Chinese dynasties. The most well-known examples of CCA are probably the buildings in the Forbidden City and the Temple of Heaven at Beijing. Before proceeding to a description of the growth and characteristics of CWA and CCA, we shall discuss their vocabulary and essence in order to give a clear picture of them.

The vocabulary of CWA is derived from the architectural vocabulary of the classical world. In his book "The Classical Language of Architecture," John Summerson suggests two criteria for classifying a building as being an example of CWA. First, a classical building is one whose decorative elements are derived directly or indirectly from the architectural vocabulary of the ancient world - the 'classical' world as it is often called. These elements are easily recognisable. For example, columns of the five varieties are applied in standard ways; there are standard ways of treating door and window openings and gable-ends; and standard runs of mouldings are applicable to all these things.<sup>3</sup> Here, the 'classical world' means the world of ancient Greece and Rome. CWA has its roots in Greek temple architecture and the religious, military and civil architecture of the Romans. The vocabulary of the architectural language was established in classical Greece (650-30 BC) and Rome (300 BC-AD 365).

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<sup>3</sup> Summerson, John, *The Classical Language of Architecture*, (Thames and Hudson, London, 1980), pp7-8.

The other criterion suggested by John Summerson is possession of the 'essence' of CWA. It could be seen in a building which embodied the principles of the classical world. Embedded in the history of CWA is a series of statements about the essentials of classical buildings. These are the qualities of harmony, proportion, centripetality and balance which came to be agreed upon over a long period. They have been felt to reside in the classical buildings and to be to a great extent 'built in' to the principal antique canon.<sup>4</sup> The classical ideal is characterised by clarity, completeness, symmetry, simplicity, repose, and harmony of proportion.<sup>5</sup>

Similarly, the vocabulary of CCA was founded in ancient China, in particular in the *Eastern Zhou* 東周 (770-256 BC), when the main elements of a building, the roof, column, window, door and bracket set came to be stylized in form and applied in a standard way. The arrangement of space, the use of five types of roof, and, in particular, the application of the bracket set as an element of both structure and decoration, are easily recognisable. They distinguish CCA from other traditional architectures in China. Then, as in CWA, embedded in the history of CCA is a series of statements about the essentials of the classical Chinese world. Those qualities of the classical world, which comprise the principles of harmony, proportion, centripetality and balance, were embodied in CCA. The classical ideal is characterised by clarity, completeness, symmetry, simplicity, repose and harmony of proportion in the treatment of space, form and decoration.

Both CWA and CCA were associated with aristocratic societies. The term 'classical' means of the highest class. Religious and public buildings in Greece and Rome were products of the highest rank of society. CCA in China was called *Guansi* 官式 (official style) architecture, because it was used only in royal, government and religious buildings of high rank. Classical architecture is associated with civilised life, taste, restraint, and serenity.

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<sup>4</sup> Ibid.

<sup>5</sup> Curl, James Stevens, *Classical Architecture: An introduction to Its Vocabulary and Essentials, with a Select Glossary of Terms*, (Batsford, London, 1992), p13.

In short, CWA has been manifested in a series of buildings whose essential elements derive directly or indirectly from the architectural vocabulary of the classical world - the ancient Greek and Roman world; and it contains a series of statements about the essentials of the classical world. Similarly, CCA is manifested in a series of buildings whose basic elements are derived directly from the architectural vocabulary of ancient China, particularly the *Eastern Zhou* 東周 (770-256 BC); and it has a series of statements about the essentials of the ancient Chinese world. Like all great architectural languages with a large vocabulary and a vast range of expressive subtleties, CWA and CCA are also marked by their rich subject-matter and clarity of expression, which offer enormous possibilities for creative design, and composition.

## **1. 2 The origin and the development of CWA and CCA.**

### **1.2.1 Classical Western Architecture**

CWA has its root in Greek religious architecture. The origin of Greek temple architecture can be dated back to an early period of Greek civilisation. The formation of Greek temple architecture lasted from about 3000 BC till the time of the maturing of Hellenic civilisation in the middle of the seventh century BC. When prehistoric peoples had settled around the eastern perimeter of the Mediterranean Sea, their primitive dwellings and religious buildings became the ancestors of these Greek temples. By the early Bronze Age, which ended about 1950 BC, some attempts at aesthetic architecture had appeared in Greece.<sup>6</sup> Figure 1.1 shows plans of a group of buildings in Troy. We find that an important characteristic of the Greek temple, a cuboid space encircled by massive walls, had appeared by this time. "The sense for form, expressed in symmetrical plans and simple arithmetical proportions,

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<sup>6</sup> Lawrence, Alexander. W., *Greek Architecture*, (Penguin Books, Harmondsworth, 1967), p1.

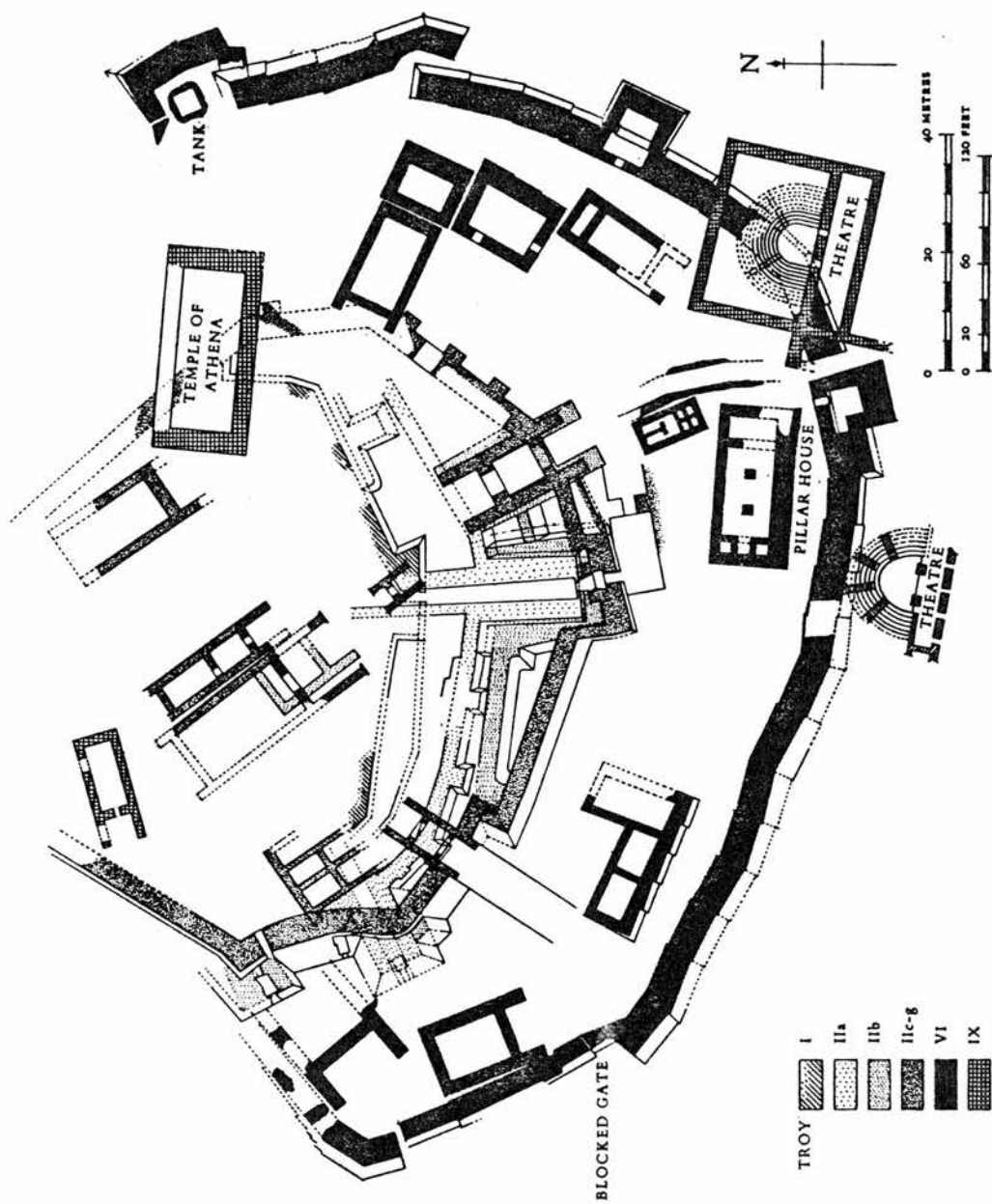


Figure 1.1. Plan of selected building at Troy (from Lawrence, A., 1967).



and the appreciation of axial lay-out, is clearly reflected in these plans."<sup>7</sup> Those important elements of Greek temples, such as enclosed and ordered interior space, the portico, horizontal axis, platform, column and frieze, were found in the palaces of the period of Middle Minoan III (1700 to 1450 BC). Figure 1.2a&b shows two plans of the palace which was built at Cnossus during this period. The massive walls enclose a space on four sides, with a central doorway on the axis and two round columns set apart. The important decorative element of CWA, the frieze, had appeared in the palace at Cnossus (fig.1.2c).

The Minoan and Mycenaean civilisation ended before 1100 BC, and Greece descended into four centuries of architectural poverty. After many generations, during which time wealth had increased slowly, and the Greeks had improved the technical quality of their temples, they were approaching success in architectural expression by the early seventh century BC. The construction illustrated in figures 1.3a&b is one of the earliest extant examples of Greek temple architecture, the restored Temple 'A' at Prineas, built in the seventh century BC. On the eastern side is a portico which contains a square pillar at its centre. There is a door-way in the cross-wall dividing the portico from the interior space. Inside this temple is an enclosed and cuboid space, and, as with most Greek temples, there are no windows in the walls. Compared with that of some later examples, its treatment, both interior and exterior, is still very simple and rough. The walls consist of sun-dried brick raised upon a rubble-based timber frame. However, when Hellenic civilisation took shape in the middle of the seventh century BC, maturity in Greek temple architecture was achieved.

In Hellenic Greece (650-323 BC), temples were of the first importance. Some important progress in architectural expression was made during the early Hellenic period. One of the extant examples of the earliest Greek temples is the Treasury of the Athenians (fig.1.4) at Delphi, built in 510 BC. It is a small Doric temple of rectangular plan, with a portico supported by two Doric columns. The elevation is divided into a front, two symmetrical flanks and a rear.

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<sup>7</sup> Ibid, p12.



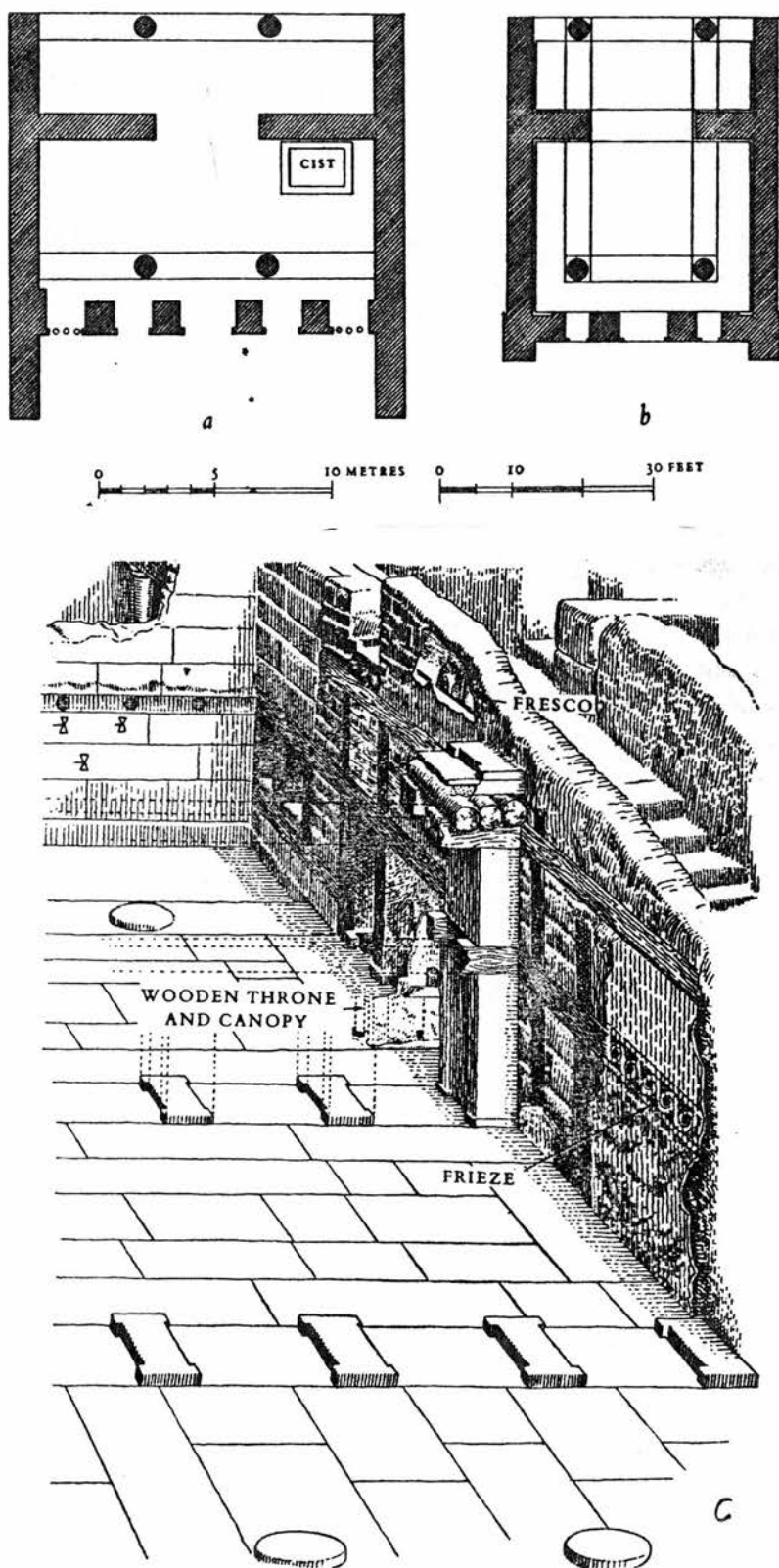
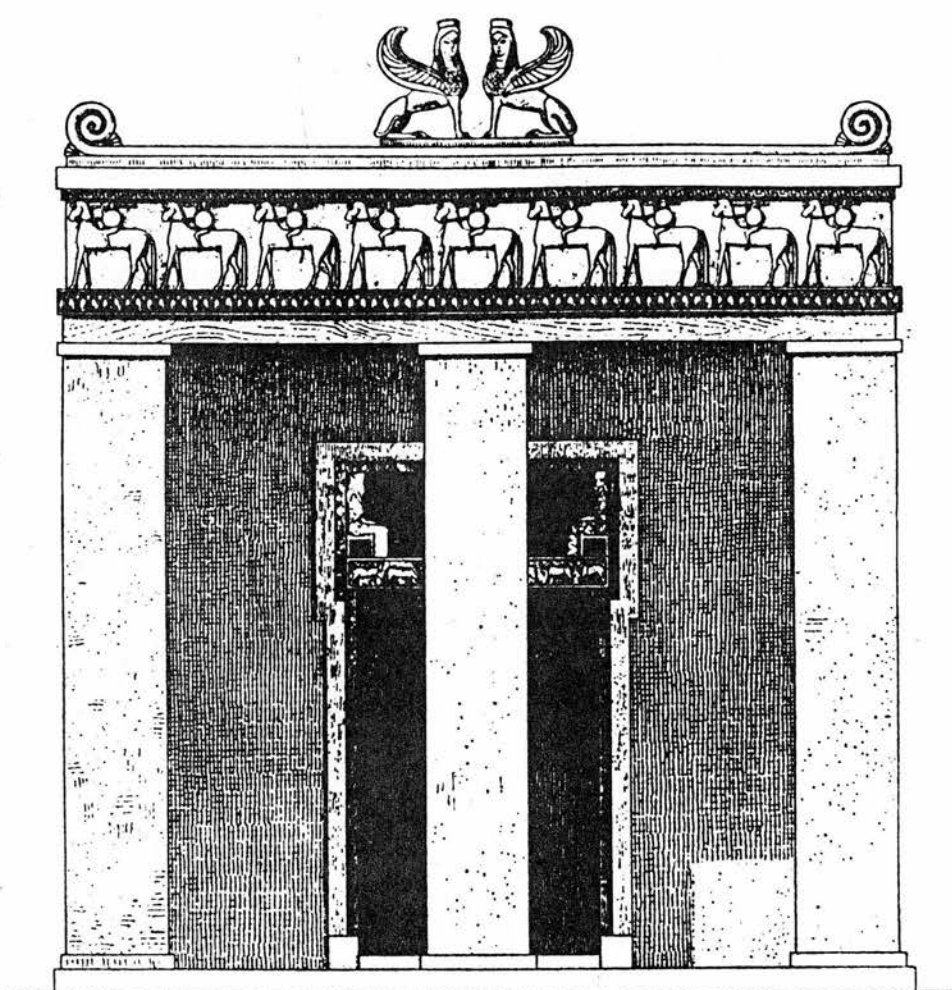
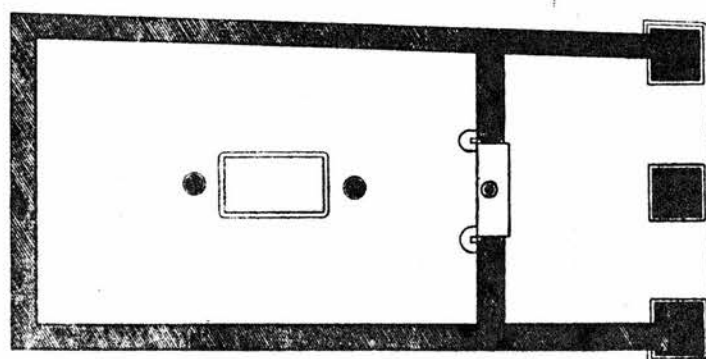


Figure 1.2. Restored plans of (a) earlier and (b) later south propylaeum at Cnossus, and (c) the hall of Double Axes at Cnossus (from Lawrence, A., 1967).



a



b

Figure 1.3. Restored front elevation and plan of Temple 'A' at Prinias (from Lawrence, A., 1967).

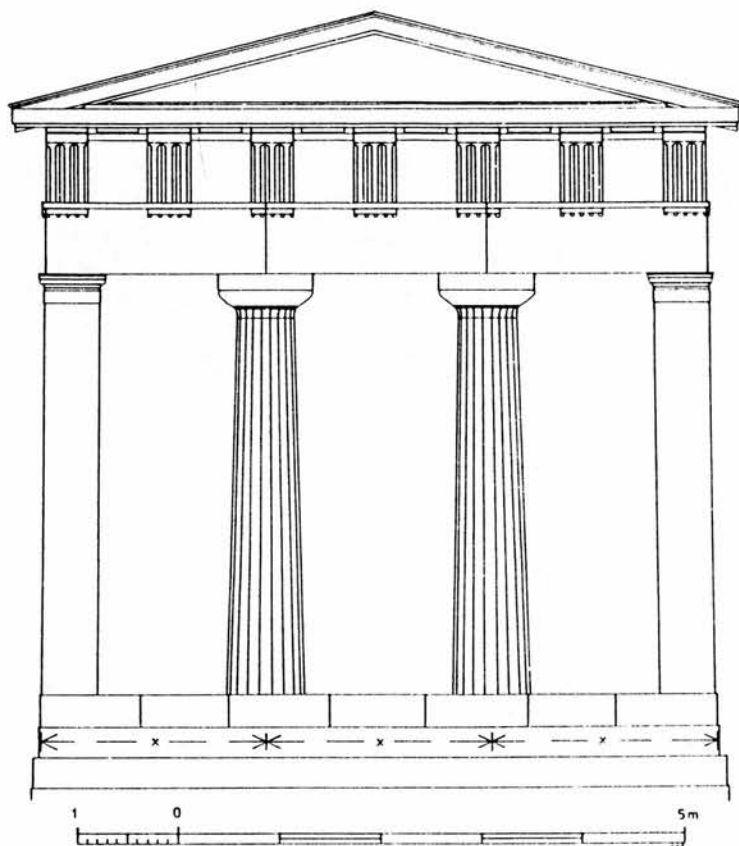


Figure 1.4. The Treasury of the Athenians at Delphi (from Coulton, J.J., 1977).

It is subdivided horizontally into three major parts: the pediment and the entablature, the columns and the walls, and the base. This became the pattern in CWA.

The appearance of the orders - the three column-styles: Doric, Ionic and Corinthian - was an important step towards maturity of expression in Greek temple architecture. The evolution of the three column-styles had taken many centuries. It was not completed until the late sixth century BC. Broadly, Doric originated from the Greek mainland and the western colonies. Ionic grew up in some Aegean islands and on the coast of Asia Minor. Corinthian was invented during the fourth century BC in Greece. The different proportions and decorations of the three column-styles represent different traditions and aesthetic tendencies.

Greek temple architecture reached perfection in the middle of the fifth century BC, a few generations after attaining maturity. It was marked by a refinement which brought a most advanced sensitivity to the form of Greek temples. This great improvement in Greek temple architecture is seen in the buildings on the Acropolis at Athens; in the Parthenon, the Erechtheion and the Temple of Nike; and in the temples built in the middle of the fifth century BC, such as the Temple of Zeus in Olympia and the Temple of 'Neptune' at Paestum. The flourishing Greek culture and art were reflected symbolically in those great temples built in Athens, Olympia, Delphi, Epidauros, Corinth, Eleusis and Delos.

The Parthenon was one of the finest examples of Greek temple architecture of this period. It was built between 447 and 432 BC. During the middle of the fifth century BC, acceptance of a limitation of nationalism freed effort for attaining perfection in each class of design. The Parthenon, with other temples built in this period, came as near perfection as is humanly possible, both in design and in execution. The most ambitious of the art-forms, the temple, had reached its zenith.<sup>8</sup> Its form and proportions had become perfect and unchangeable. Ancient Greek architects spent more than two centuries trying to perfect just one kind of building and created an architecture of such enduring excellence that it has

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<sup>8</sup> Ibid, p84.

survived for more than two thousand years as a universal ideal.<sup>9</sup> The Parthenon set the standard for CWA.

In the Hellenistic age (323-30 BC), because of the conquests of Alexander, Greek culture was spread over Europe and Asia Minor, and with it Greek temple architecture. In this period, Greek temples provided much of the decorative inspiration, and public buildings multiplied in type and number and passed into permanent form.<sup>10</sup> But a decline in religious architecture inevitably followed the decline of religion and politics in Greece.

Conquered by the Romans, Greece became one of the new provinces of the Roman Empire in 146 BC, and Greek artists and art were introduced into Italy. Greek temple architecture as a mature architectural language was inherited by the Romans. Early Roman architecture retained its Etruscan character. From the third century BC it began to adopt the architectural language of Greece, whilst at the same time developing the constructive traits that were to make its buildings the most stupendous of all western architecture. The Romans adopted the Greek Orders, and developed the arch and the vault originally made by the Etruscans.<sup>11</sup> In the first century BC the use of a volcanic sand mixed with lime revolutionized building construction and transformed classical architecture. The beam and post system of Greek temple architecture was moulded into a new structure of arches and domes.<sup>12</sup> The Colosseum (built 70-82) and the Pantheon (built 120-124) are in the most perfect state of preservation of all the ancient buildings in Rome, and are landmarks of CWA in both architectural technique and expression. In 14 BC Vitruvius provided the earliest description of CWA, and, in particular, of the Greek Orders, in his *De Architectura*, which was recognised as an important treatise on CWA in Renaissance times.

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<sup>9</sup> Adam, Robert, *Classical Architecture*, (Viking, London, 1990), p6.

<sup>10</sup> Fletcher, Banister, *Sir Banister Fletcher's a History of Architecture*, (the 17th revised edition, ed. R.A.Cordingley), (The Athlone Press, London, 1961), p97.

<sup>11</sup> Ibid, p174.

<sup>12</sup> Adam, Robert, *Classical Architecture*, (Viking, London, 1990), p12.

Late Roman buildings draw their inspiration not from a distant Greek source but from earlier imperial buildings.<sup>13</sup> After its participation in the great achievement of Rome (300 BC - AD 365), CWA met with many vernacular architectures during the Byzantine, Early Medieval, Romanesque and Gothic periods of the next thousand years. The 'hybridisation' between Greek temple architecture and other architectures, especially the Gothic, created a lot of dramatic works all over Europe. At the same time a gap appeared in the development of CWA between the Roman period (300 BC-AD 365) and the Renaissance.

The Renaissance of CWA, which started in Italy in the early fifteenth century, created a new age of CWA in Europe. Early Renaissance architectural styles spread from Florence to other major cities in Italy in the middle of the fifteenth century. From the end of the fourteenth century European architects began to review those forgotten ruins of classical Greece and Rome and study ancient vocabulary and grammar. The early Italian Renaissance was an intellectual adventure. "A fresh consciousness of history was infused with the vigour of originality to create a new classical architecture of great beauty."<sup>14</sup> One of the salient characteristics of this new departure was the use of the Greek orders which had been in abeyance from the end of the time of Imperial Rome.<sup>15</sup> In the fifteenth century, printed editions of Vitruvius and Alberti, and especially the illustrated works of Serlio, Vignola and Palladio, spread knowledge of CWA to all the European countries.

In the West from the early fourteenth century till the end of the nineteenth century, CWA emerged in different movements, such as high Renaissance, Mannerism, Baroque, Rococo, Neo-classism and Renaissance Revival. Each of them had its own territory and period in these five centuries.

In general, CWA originated in the ancient Greek world, and developed mainly from Greek temple architecture. It reached maturity in the early Hellenic period, and

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<sup>13</sup> Ibid, p14.

<sup>14</sup> Ibid, p22.

<sup>15</sup> Fletcher, Banister, *Sir Banister Fletcher's a History of Architecture*, (the 17th revised edition, ed. R.A.Cordingley), (The Athlone Press, London, 1961), p654.



subsequently approached perfection during the middle of the fifth century BC when Hellenic civilisation arrived at its peak. Inherited by the Romans, CWA spread to the whole of the western world along with the spread of Greek and Roman civilization. By the end of the nineteenth century, CWA had flourished in three major periods: Hellenic, Imperial Roman, and European Renaissance.

Based on the achievement of Greek temple architecture, CWA produced countless great buildings in the West during the last two and a half millennia. In our study we are not going to concern ourselves with CWA in Imperial Rome and Renaissance Europe but concentrate on it as it emerged as temple architecture during the Hellenic period in Greece, and in particular, as it was exemplified in the Parthenon at Athens.

### 1.2.2 Classical Chinese Architecture

The *Xia* 夏 (2100-1600 BC) and the *Shang* 商 (1600-1028 BC) dynasties are considered as the dawn of Chinese civilisation. The lower basin of the Yellow River was traditionally known as the cradle of CCA. The *Shang* 商 produced great bronze art. In 1066 BC the vassal state *Zhou* 周 conquered the *Shang* 商, and moved its capital city from *Anyang* 安陽 to *Hao* 鎬. After about 300 years, *Ping Wang* 平王 (*King Ping*) moved the capital again to *Luoyi* 洛邑. Historians called it the *Eastern Zhou* 東周 (770-256 BC) to distinguish it from the *Western Zhou* 西周 (1066-770 BC). Buildings having a rectangular plan and a platform have been found in the *Shang* 商 remains of palaces near *Anyang* 安陽. The columns stand on boulder bases. Timber-framed two-storeyed buildings with columns, eaved roofs, doors and railings, and great quantities of roof tiles have been found at the ruins of the palaces of the *Zhou* 周,<sup>16</sup> The most significant element of CCA, *dougong* 斗拱 (bracket-set), appeared during this period.

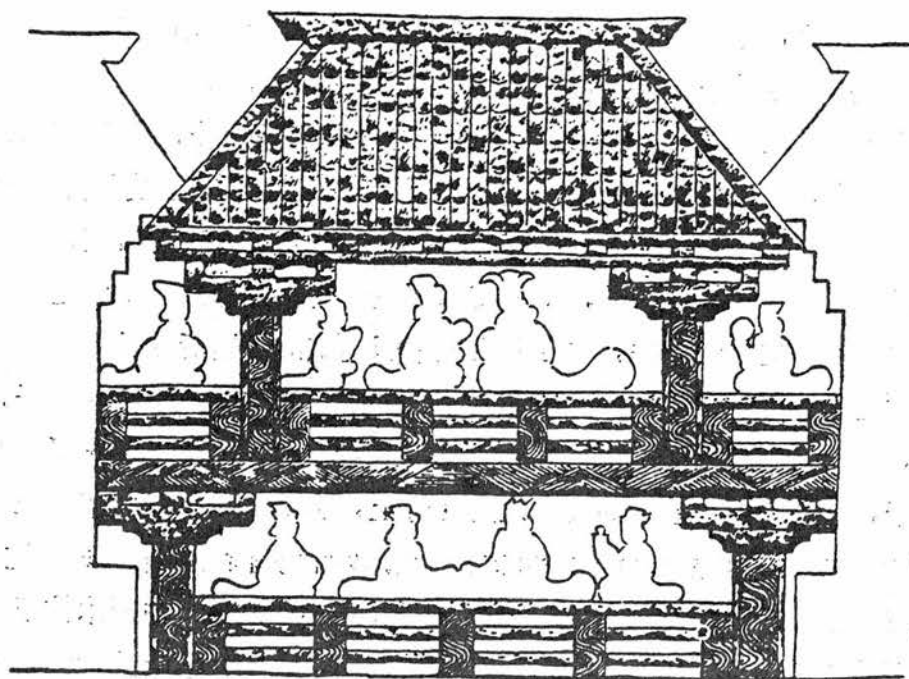
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<sup>16</sup> Liang, Sicheng, *A Pictorial History of Chinese Architecture: a Study of the Development of its Structural System and the Evolution of its types*, (MIT Press, Cambridge, Mass and London, 1984), p9.

The *Eastern Zhou* 東周 (770-256 BC) was subdivided into the Spring and Autumn period (770-476 BC) and the Warring States period (475-221BC). By the end of the sixth century BC increasing wealth and the use of new technology enabled Chinese civilisation to take shape. Most of the great thinkers and writers, the founders of Chinese civilisation, such as Confucius 孔子 (552 - 479 BC) and Laozi 老子 (500 BC), were alive during this period. The book *Kaogong Ji* 考工記, the oldest treatise on CCA was written in the early fifth century BC. It described the planning of the *Zhou* 周 cities and set out important principles of construction. During the Warring States period, high platforms, hip roofs and bracket sets had appeared. Brick, ceramic tile and architectural sculpture and painting were applied in some buildings of importance. We suggest that CCA arrived at maturity of architectural expression during this period. The Warring States period was known for rapid advancement in science, art and literature. According to the records, the royal palaces of the *Zhou* 周 and the palaces of the dukes had very luxurious decoration.

After conquering six other kingdoms *Qin* 秦 (221-206 BC) united China and built new palaces on the southern bank of the *Wei River* 渭水. The *Qin* 秦 was overthrown by the *Han* 漢 (206 BC - AD 263), and a unified and stable feudal empire of China was founded. The biggest city in the world after Rome was built around the former palaces of the *Qin* 秦, and was called *Changan* 長安. During the *Eastern Han* 東漢 (25-263) Buddhism was introduced into China, and Buddhist ideas and expressive methods in architecture had a considerable influence upon CCA. Figure 1.5 shows a group of buildings carved on bricks of the *Han* 漢. Though no buildings of the *Han* 漢 are still standing, from writings, sculpture, painting, and especially from engraved stone and clay funeral house models, we can see that one of the most important advances in CCA, the five roof styles, called *Wudian* 廡殿 (hip roof), *Xieshan* 歇山 (hip and gable roof), *Xuanshan* 懸山 (overhanging gable roof), *Yingshan* 硬山 (gable roof) and *Cuanjian* 攢尖 (conical roof), was made during this time. Under the *Han* 漢 empire, CCA spread to the whole of mainland China.





插图一 汉代画像中之建筑

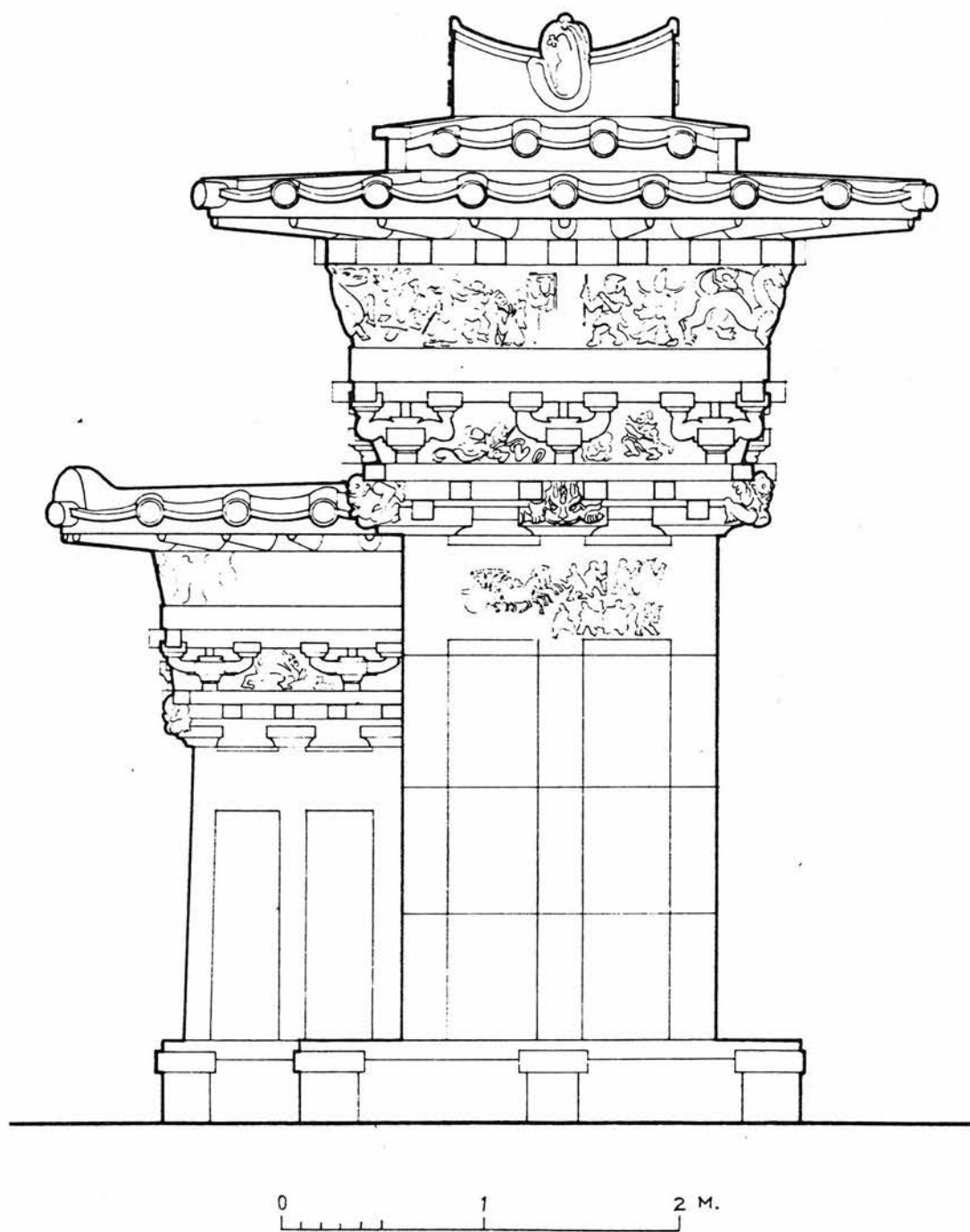
Figure 1.5. A group of buildings carved on bricks of the Han 漢 (from Liang, S.C., 1981).

During the *Han dynasty* 漢朝 (206BC-AD263) the most characteristic object used in CCA, the *dougong* 斗栱 (bracket-set), was highly refined and stylized in its treatment. Figure 1.6 shows a monumental stone pier, called *que* 闕 at the Tomb of *Gaoyi* 高頤 at *Yaan* 雅安. There were the roofs and eaves supported by rafters and covered by tubular tiles with large ridge ornaments; the stylized bracket-sets, an important element of decoration; and, by now, reliefs and paintings decorating the roofs and the area under the over-hanging eaves. In this example we can see that the elements of CCA had become highly stylized.

Following the *Eastern Han* 東漢 (25-263) came more than 300 years of chaos and division. The most notable feature of CCA during this period was the building of vast numbers of temples, pagodas, and caves made for Buddhist worship. The *Sui* 隋 united China in AD 581, but shortly afterwards it was overthrown by the *Tang* 唐 in AD 618. The *Sui* 隋 (581-618) built its capital city and palaces in *Changan* 長安, which became the capital city of the *Tang dynasty* 唐朝 (618-907). The *Tang* 唐 was a great unified, strong, durable and flourishing dynasty.

Between the *Han* 漢 and the *Tang* 唐, refinement appeared in the practice of CCA. It marked its approach to perfection in architectural expression. From extant Buddhist temples of the *Tang* 唐, we find that refinement in the inclination and curvature of the horizontal and vertical lines of the buildings had become a building standard. An important thing for CCA during this time was the application of the curved roof. This made the outlines of the buildings more flexible and gentle, and provided more variety. In the *Tang* 唐 the treatment of space, form and decoration in CCA became perfect and unchangeable.

From the *Han dynasty* 漢朝 (206BC-AD263), western art and architecture were introduced into China, by means of the so called 'silk road' which ran from *Changan* 長安 to India and the Central Asian countries. From that time, a link between the West and China was established. Buddhist symbols, such as the lotus, and western ornaments, such as Greek scrolls, were adopted into the ornamentation in CCA.



四川雅安县高颐墓阙立面图

Figure 1.6. A monumental stone pier, called *que* 阙, at the Tomb of Gaoyi 高颐 at Yaan 雅安 (from Liu, D.Z., 1980).

The *Song dynasty* 宋朝 (960-1279) succeeded the *Tang* 唐 as a flourishing period for Chinese art and architecture. During the *Song* 宋, important developments in interior fixtures and furniture accelerated great improvements in architectural technique and in expression. For instance, the *Song* 宋 introduced 'minor carpentry' (doors, windows, partitions, screens, and ceilings for shrines, etc.) which became more and more of an art. An important influence on CCA in the *Song* 宋 was the book, *Yingzao Fashi* 營造法式 (Building Standards), compiled in 1097 by *Li Jie* 李誡, superintendent of construction at the court of the *Emperor Hui-zhung* 徽宗 (reigning 1101-1125) of the *Song* 宋. *Yingzao Fashi* 營造法式 was published in 1103 by the *Song* 宋 government as a text book of CCA.<sup>17</sup> In this treatise refinement is described as being normal practice, and various kinds of design in structure, plan and decoration are illustrated.

Between the *Song dynasty* 宋朝 (960-1279) and the early *Ming dynasty* 明朝 (1363 - 1644), the centre of Chinese politics and culture was moved to the Southeast, for the *Song* 宋 moved its capital from *Tang's Changan* 長安 in north China to *Kaifeng* 開封, and to *Hanzhou* 杭州 in south-east China. Because of mixture with the style of the south, and the development of building materials and technique, decoration in CCA during this period had a style characterized by elegance and refinement. This state of affairs lasted for approximately 400 years. Then the *Song* 宋 was overthrown by the *Yuan* 元 (1271-1368 ), the Mongols of Northern China. The *Ming* 明 conquered the *Yuan* 元 in 1368. Meanwhile, in Europe, a great historical age, the Renaissance, had arrived.

In the *Tang dynasty* 唐朝 (618-907) and the *Song dynasty* 宋朝 (960-1279) CCA was introduced into Korea, Japan and South Asia, with the spread of Chinese civilization. Chinese Buddhist temples were introduced into these countries, and CCA was accepted as a model by people who had different cultural backgrounds.

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<sup>17</sup> 劉敦楨, 中國古代建築史, 中國建築工業出版社. Liu, Dunzhen, *Zhong guo gu dai jian zhu shi* (The Publishing House of the Chinese Building Industry, Beijing, 1987), pp242-245.

The *Ming* 明 unified all China in the 400 years after the *Tang* 唐. The third *Ming* emperor, *Yongle* 永樂, rebuilt Beijing in 1407-1423. The great achievement of the *Ming* 明 is seen in the Forbidden City, the *Ming's* palace and the only surviving palace city in China. During the *Ming dynasty* 明朝 (1363-1644) the centre of politics and culture moved from southern China to Beijing. When Beijing and the Forbidden City were built, most of the workers and masters who worked on the projects were brought from southern China. The style of the palaces consciously imitated that of the royal palaces in *Nanjing* 南京 (the southern capital), but the plan was based on the royal palace of the *Yuan* 元. Structure and decoration in CCA during the *Ming* 明 were the result of a great pooling of the achievements of several thousand years. The *Taihe Dian* 太極殿, the main hall of the Forbidden City, was the finest example of CCA of this period. By the time of the building of the *Taihe Dian* 太極殿, or perhaps much earlier, CCA had become extremely stylized, from plan to every detail of the decoration. During the *Ming dynasty* 明朝, decorative materials, such as glazed tiles and marble, were widely used in CCA and this produced some new effects of the sort seen in the *Taihe Dian* 太極殿.

In 1644, the Manchu nomads, a militarist nation from north eastern China, overthrew the *Ming* 明, and established the last dynasty in Chinese history, the *Qing dynasty* 清朝 (1644-1911). In 1734, the *Qing* 清 government published the text book, *Engineering Manual for the Board of Works*, the *Gongcheng Zuofa Zeli* 工程作法則例 (*Structural Regulations of the Qing*), listing detailed measurements of more than twenty classical or common official-style buildings, and basically expounding the rules for design in CCA.<sup>18</sup> From the middle of the nineteenth century, the *Imperial Qing* 清 suffered invasions by the western powers and the old civilisation faced the new challenge from the West. In 1911 the revolution broke the continuity of 2,000 years' feudal society in China. Along with this change, Chinese traditional architecture, including CCA, lost its dominant position.

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<sup>18</sup> Liang, Sicheng, *A Pictorial History of Chinese Architecture: a Study of the Development of its Structural System and the Evolution of its types*, (MIT Press, Cambridge, Mass. and London, 1984), p14.



To summarise: CCA took shape during the *Shang* 商 (1600-1028 BC) and the *Western Zhou* 西周 (1066-770 BC), and reached maturity during the time of the *Eastern Zhou* 東周 (770-256 BC). But it took a long time to approach perfection. It did not achieve stylisation until the *Han dynasty* 漢朝 (206BC-AD263). Refinement came between the *Eastern Han* 東漢 (25-263) and the *Tang* 唐, and it approached perfection during the *Tang dynasty* 唐朝 (618-907). Running parallel with the development of Chinese civilisation over the two and a half thousand years prior to the end of the *Qing* 清 in 1911, it was a stable and continuous process. There were four peaks for CCA in this process, the *Han dynasty* 漢朝 (206BC-AD263), the *Tang dynasty* 唐朝 (618-907), the *Song dynasty* 宋朝 (960-1279), and the *Ming dynasty* 明朝 (1363 - 1644) and *Qing dynasty* 清朝 (1644-1911). Behind these peaks of CCA was a unified country and a flourishing culture.

From the Hellenic Period (650-323 BC) till the end of the twentieth century, CWA had been a major architectural language in the West. This is a period of more than two and a half thousand years. Though its style changed during the period between ancient Greek and Roman times and the Renaissance, generally we find a clear continuity between each historical phase. Similarly, CCA was continuously in use as a major architectural language in China for more than two and a half thousand years. From the *Eastern Han* 東漢 (25-263) till the end of the *Qing dynasty* 清朝 (1644-1911), the main characteristics of CCA were little changed. Those characteristics of enclosed and ordered interior spaces, high platforms and terraces, axes and column-styles, were continuously present throughout the history of both architectures. This fact reveals that behind the continuity of CWA and CCA is the continuity of Greek civilisation in the West and of Chinese civilization in the East.

## **1.3 Some essential characteristics of CWA and CCA**

### **1.3.1 Construction**

Originally, the Greeks built their temples using wood and sun-dried brick. By about 600 BC stone columns and walls were appearing. Then the pediment and the gable became important. However, the early structural and decorative system of stone temples was derived from that of predecessors built of wood and sun-dried brick. After several generations, by the end of the sixth century BC, marble had become the main material.

The structure of Greek temples was much simpler than that of the later ones of Imperial Rome. Figure 1.7 shows the structure of Doric temples in the early fifth century BC. The columns and massive walls rise upon the platform without bases. The beams are made of stone slabs. Between the capital and the beam there is a square board called an abacus. The beams on the abacus are bound together by a short board, called a regula, and over it is a small projection, called a taenia. The beams and the connecting boards make up the architrave. The roof beams rest on the architrave. The exterior ends of these beams are decorated as triglyphs, which are copies of fluted tiles which occupied the same position in the early days. Between the triglyphs is a slab carved in relief and called a metope. The horizontal band consisting of triglyphs and metopes, is called a frieze. A wooden plate is placed upon the frieze and the architrave to support the rafters. The flat rafters form a coffered ceiling inside the building. Sloping roofs covered with marble tiles overhang the frieze. The plates, rafters and gutter form the eaves and the cornice. The sloping roofs form a triangular pediment on each of the two gable-ends, and this is decorated with a group of sculptures. In Imperial Rome the arch, vault and dome were employed in order to create larger interior spaces and variety of form. But the Greek beam-column system was still the fundamental structure.

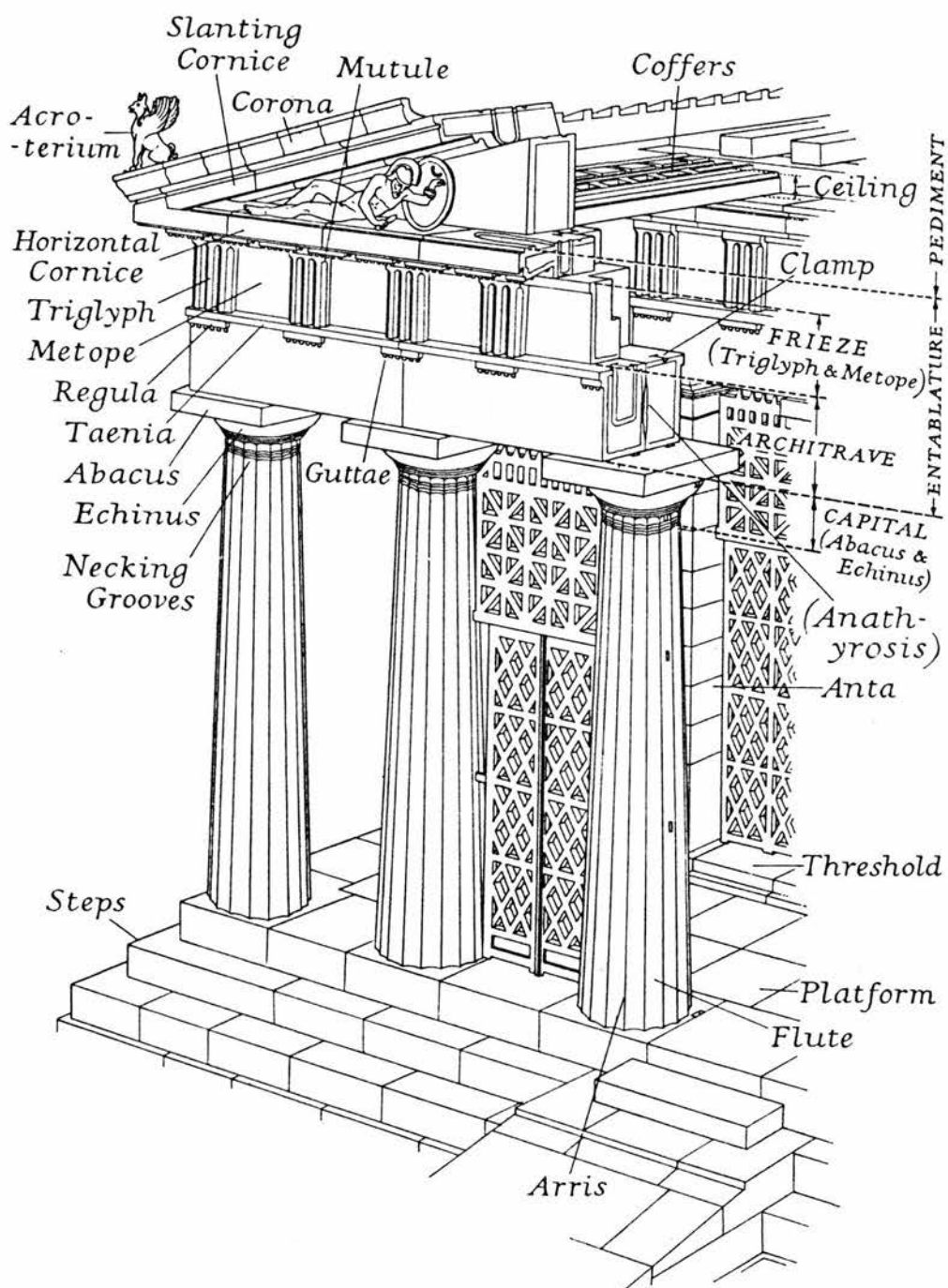


Figure 1.7. The structure of a Doric temple: the Temple of Aphaia at Aegina (from Lawrence A., 1967).



Wood is always the main building material in CCA. Ceramic tiles and bricks appeared during the *Eastern Zhou* 東周 (770-256 BC). Glazed tiles were introduced from Central Asia in the *Tang dynasty* 唐朝 (618-907) or earlier. Stone was traditionally employed in making platforms and terraces. In the most important buildings, such as the Taihe Dian, the platforms and terraces were made of white marble.

CCA used a wooden framework. The skeleton of such buildings is a wooden beam-column structure. Walls do not support the weight of the roof. Thus within the building, the size of the rooms is not limited by the need for weight-bearing partitions, while exterior walls can acquire doors and windows at will. The masonry construction is often very massive. The triangular roof trusses are supported only by columns. This makes the structure more flexible.

The timber frame construction of CCA is usually called *tailiang* 抬梁, or raised beam construction. It was widely used in the Spring and Autumn period and was improved as time went on. Figure 1.8 shows an example of the structure of CCA in the *Tang dynasty* 唐朝 (618-907). The column rises from a lower base and supports the beams. A lintel across the top of the shaft links the two columns together. Between the columns and the purlins there is a group of supports, called a *dougong* 斗拱 (bracket set), which transfers the weight of the roof to the columns.

The bracket set is basically composed of two things. A block placed on top of a column, and called *dou* 斗, looks like a capital (fig.1.9). Above it, and transverse to the direction of the depth of the building, are bow-shaped lengths of wood called *gong* 栱, placed on smaller timber blocks called *sheng* 升. This combination is called *dougong* 斗栱 (bracket-set).<sup>19</sup> According to the building regulations of the *Tang dynasty* 唐朝 (618-907), *dougong* 斗栱 may be used only in palaces, temples and other important buildings.

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<sup>19</sup> "Basically, full advantage was taken of the lever action of transverse members or cantilevers. First, a square-shaped wooden block, *ludou* 櫨斗, the lowest bearing block, is placed on a flat crossbeam above the top of the pillar. Square brackets, called *gong* 栱, the two ends of which are curved upwards in a cup shape, are let into the cushion or seat, *ludou* 櫨斗. At the two ends layer upon layer of brackets may be piled upwards in order to support the roof and the eaves' purlins. Horizontal members with beak-shaped ends, called *ang* 昂, may be inserted into the construction. These projecting members are relatively long in order to spread the load as they carry the brackets

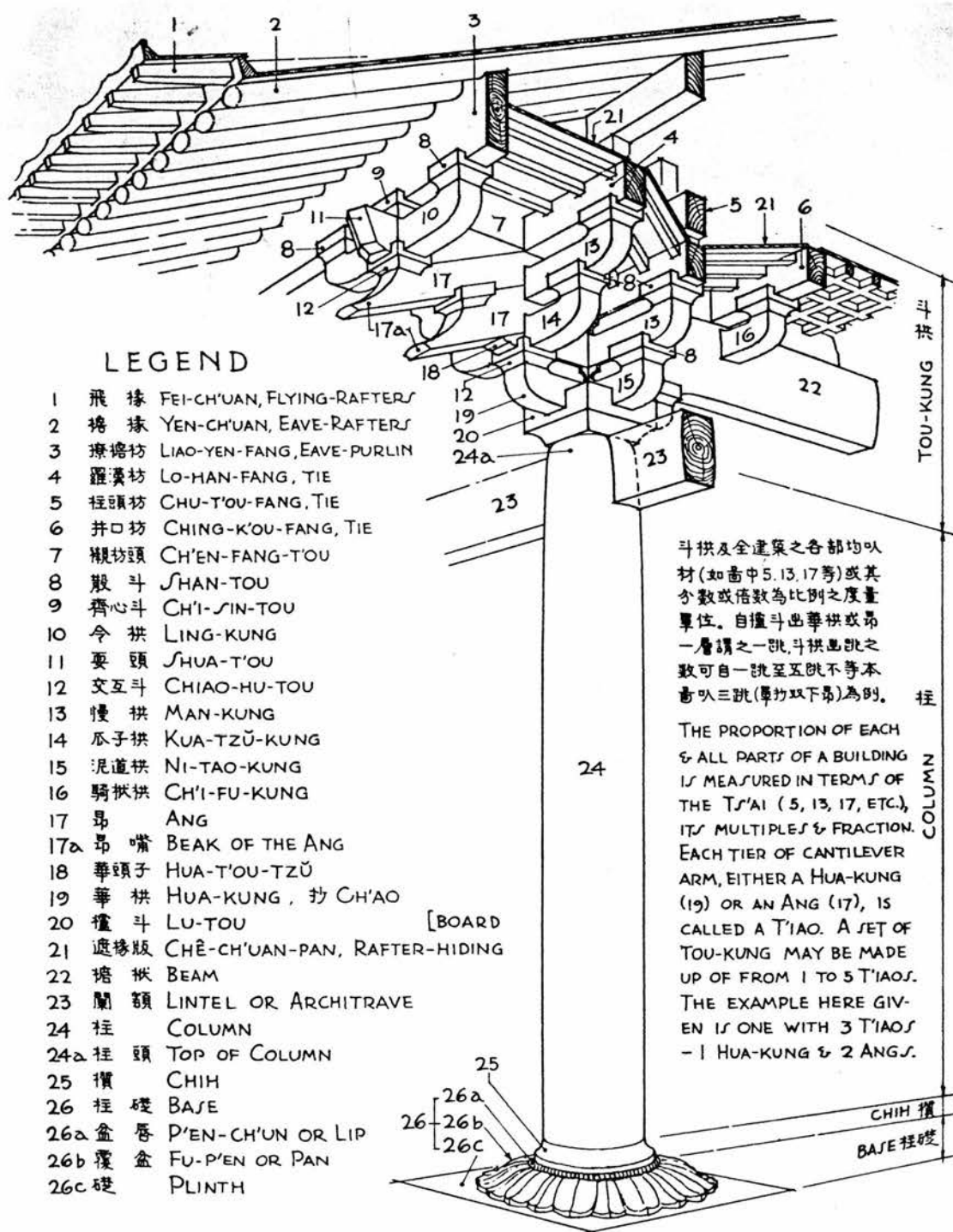


Figure 1.8. The structure of a building of CCA of the Tang dynasty 唐朝 (from Liang, S.C., 1985).

The timber skeleton consists of posts and cross beams rising towards the ridge in diminishing lengths. The purlins are positioned along the stepped shoulders of the skeleton. They are placed on struts on the tops of the beams to support the weight of the rafters and the roofing. Beams are placed on top of the bracket sets along the building. The bracket sets, a group of delicately fabricated components, are usually incorporated with the *tailiang* 抬梁 system, and are used to support the roof on the inside of the building and the wide overhanging eaves. The beam-column system is the standard structure in CCA. Although arch and vault had been successfully used in construction in China during the early seventh century, they were never an important feature in CCA.

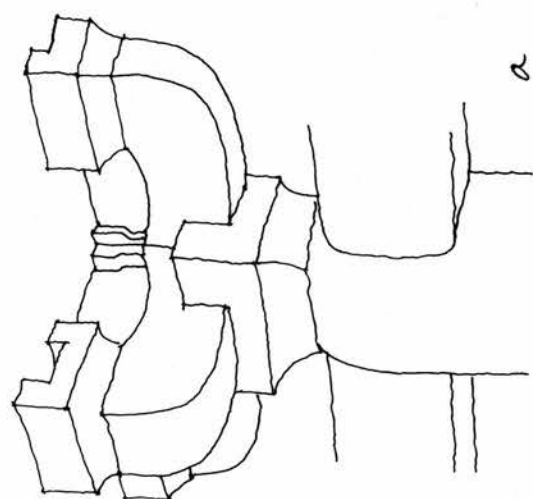
It has been said that the history of CWA is written in stone, and that the history of CCA is written in wood. The differing properties of stone and wood produce very different effects in the appearance and feel of the buildings of the two architectures. The structure of both CWA and CCA comes from a similar source - the beam-column system. The Greeks and Chinese seem to prefer to use the most simple structure. Arch and dome were used in CWA after the Hellenic period, and they were largely used in Imperial Rome. However, the beam-column system is the main structure-system throughout the history of CCA.

### 1.3.2 Independence

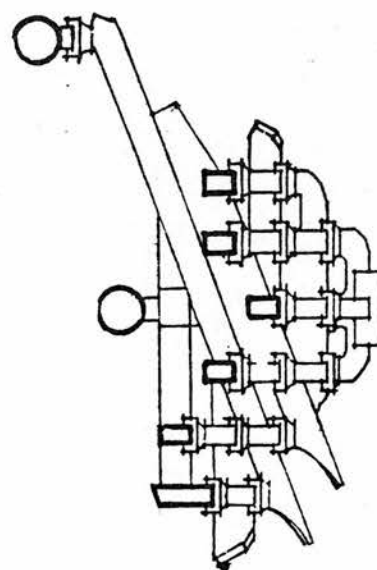
Most Greek temples were individual buildings. The important buildings, with leading roles in the complexes, always stand alone. The temples at Olympia, Delphi, and on the Acropolis in Athens are all individual buildings - which means buildings that stand independently without close architectural links with other buildings. This is true of the Parthenon on the Acropolis, and of the Temple of Zeus in the complex at Olympia. The complexes of Greek temples are composed of such buildings, each of them playing its own 'role' (fig.1.10). Such is the case

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upwards and outwards to support the characteristically deep eaves." Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p228.



a



b

按營造法式

Figure 1.9. Dougong (bracket set), (a) a bracket set of the Tang dynasty 唐朝, and (b) a bracket of the Song dynasty 宋朝 (from Liang, S.C., 1981).

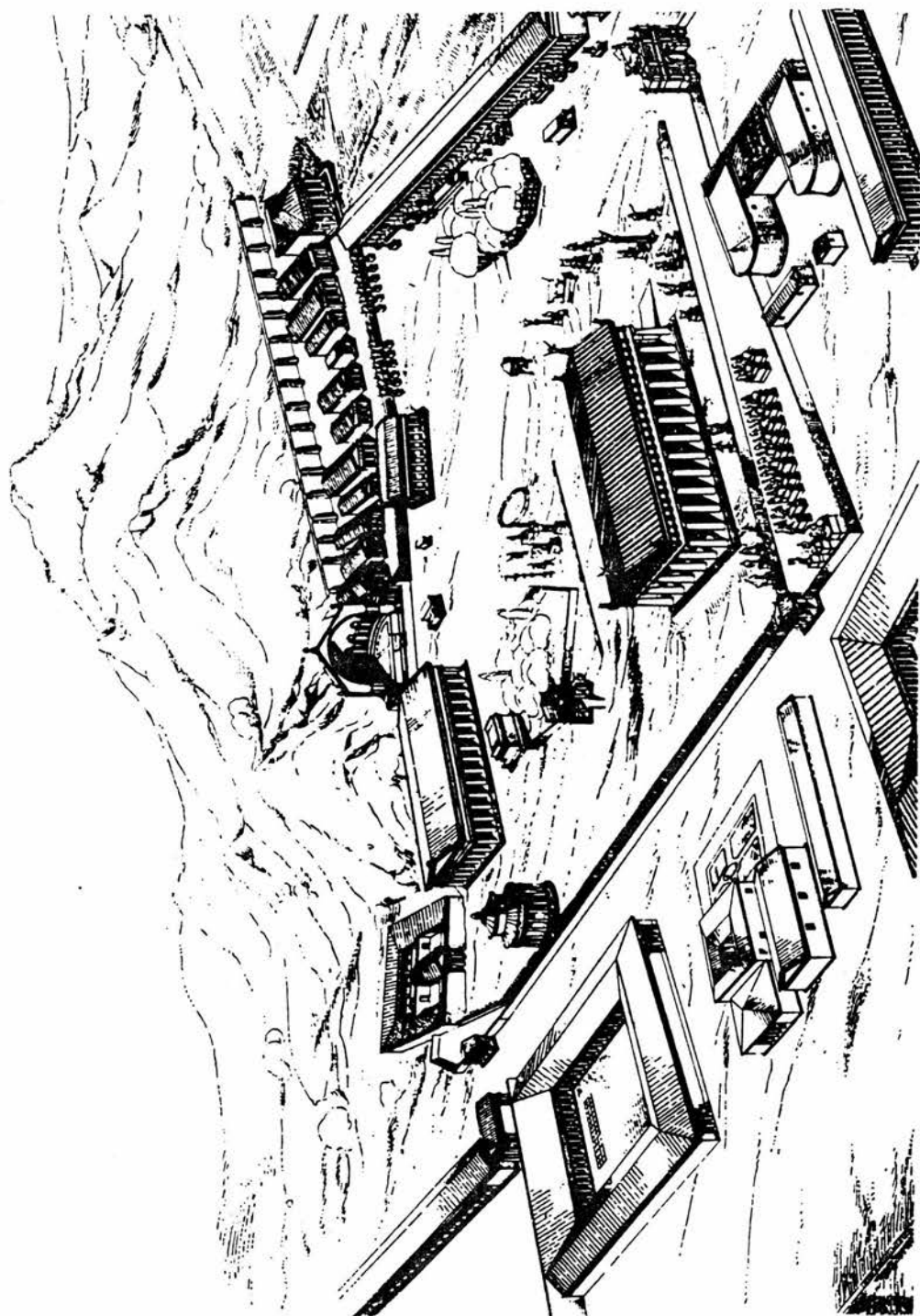


Figure 1.10. Restoration of Sanctuary at Olympia (from Lawrence, A., 1967).

with a family composed of different people, each of them playing his own role. Independence is an important characteristic of Greek temple architecture. As G. Rodenwaldt writes:

Independence is as much a part of the nature of a Greek temple as of the statue which it contains. It has no artistic connection with anything exterior. It is not planned in relation to any other building near by, no symmetrical space surrounds it, and its marble steps rise straight up from the bare rock foundation on which it is built. The necessity for considering the surrounding space would have seemed to the Greek mind of those times a curtailment of liberty, a restriction of the independence of the building. In the same way a statue was not considered to have any connection either artistic or decorative with what surrounded it, for that might impair its dignity and effect.<sup>20</sup>

This feature can also be found in CCA. The palaces and temples are all individual buildings. Such was the case with the Taihe Dian and the main halls in the Forbidden City. The basic shape of a building in CCA consists of a raised platform, forming the base, and a structure with walls and roof enclosing a space. As is the case with the Greek temple, the individual building in CCA is a complete unit which plays a role in the complex.

Usually, a building in both CWA and CCA has one portico and one interior space (in the Parthenon there are two interior spaces, and it can be thought of as two individual temples with a common exterior form). In Greek temple architecture, an independent building is described, according to the number of frontal columns, as:

Distyle (two columns)

Tetrastyle (four columns)

Hexastyle (six columns)

Octastyle (eight columns)

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<sup>20</sup> Hege, Walter, *The Acropolis*, (Ed. G. Rodenwaldt), (Basil Blackwell, Oxford, 1957), p32.



Decastyle (ten columns)

Dodecastyle (twelve columns)

Distyle (one bay) is a basic unit of elevation and space. Tetrastyle is like Distyle but with two bays added on each side. Similarly, a building in CCA is described, according to the frontal intercolumniation, as:

*Yi juan* 壹間 (one bay)

*San juan* 參間 (three bays)

*Wu juan* 伍間 (five bays)

*Qi juan* 柒間 (seven bays)

*Jiu juan* 玖間 (nine bays)

To have nine bays is uncommon for a building of CCA, and places it in the highest rank. However, to have eleven bays is most unusual, and occurs in the case of only one or two of the most important buildings, such as the Taihe Dian. In both CWA and CCA, the number of bays is usually odd, and the central space in the intercolumniation tends to have a wider span to emphasise an axis. The importance of a building is marked by the number of bays that it has. Independence is, we must say, an important feature of both architectures. So our study will concentrate on an individual building - a complete unit, in architectural language. Starting with it, we shall proceed to examine the nature of classical architecture.

### 1.3.3 A basic form

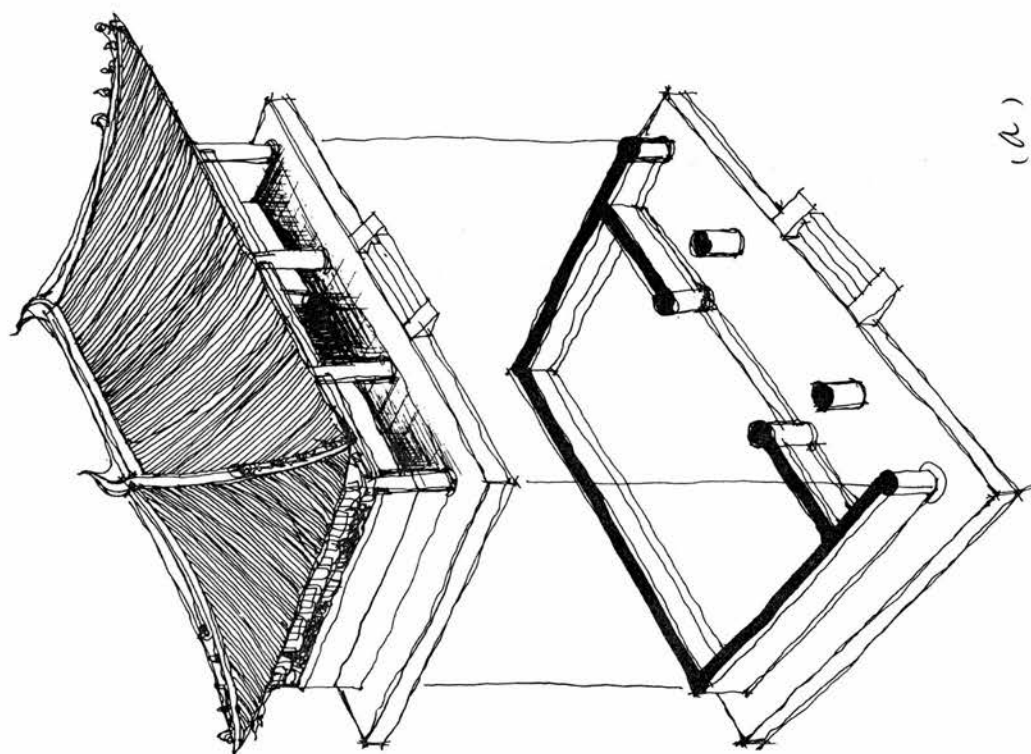
We find that there are some characteristics common to Greek temple architecture and CCA: the individual building with a single floor, the enclosed interior space, the portico and the platform. We may classify this building as being of 'basic form' because those fundamental forms and characteristics of a classical building have been found in it. Each classical building is derived from this basic form.

We suggest that the basic form in both CWA and CCA is of a small prostyle building with a three-bay portico. In this basic form we see the important characteristics of classical buildings embodied: the enclosed and ordered interior space with a horizontal axis; the symmetrical portico, composed of three major parts, the pediment, the colonnade and the base; and lastly the two identical flanks. Figure 1.11b shows the basic form in CWA. Those great Greek temples are derived from this basic form. The great temples, such as the Temple of Aphaia at Aegina and the Parthenon (fig.1.12b&c), are scaled up from the small three-bay temple, the basic form (fig.1.12a). Comparing these three elevations, we can see that their shape is similar, but that the proportions and scale are slightly different.

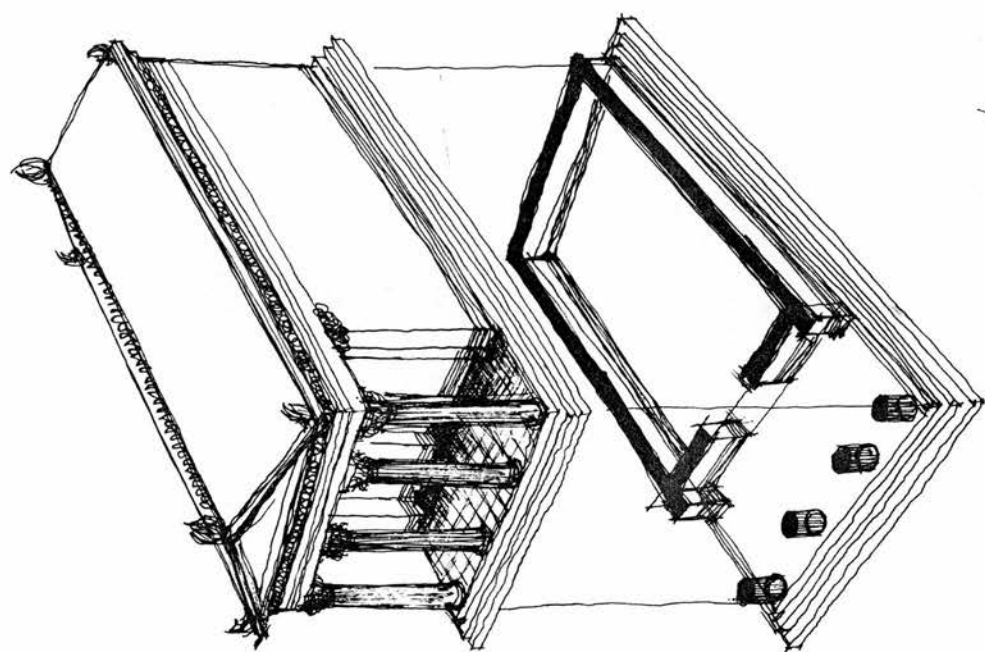
Figure 1.11a shows a basic form of CCA. It is a small three-bay building. The front elevation is clearly divided into three main parts, namely a low podium, a colonnade and a wide, spreading hip roof. The gate-house of the *Dule Temple* 獨樂寺 (the temple of Unique Happiness) at *Jixian* 薊縣, *Hebei* 河北, built in 984 AD (the oldest extant building of CCA), a small prostyle building with a three-bay portico, can serve as a model of the basic form in CCA (fig.1.13a). Those great halls of CCA are derived from this basic form. The large buildings, such as the main hall of the *Temple* 佛光寺 at *Wutai Shan* 五台山, *Shanxi* 山西 province, (fig.1.14b) and the *Taihe Dian* (fig.1.14c), are scaled up from the small three-bay building, the basic form in CCA (fig.1.14a).

The existence of a basic form in both CWA and CCA reveals another important feature of the two architectures. In figures 1.12 and 1.14 it can be seen that the shape of the three





(a)



(b)

Figure 1.11. The basic form of CWA and CCA, (a) a small three-bay building of CWA, (b) a small building of CCA.

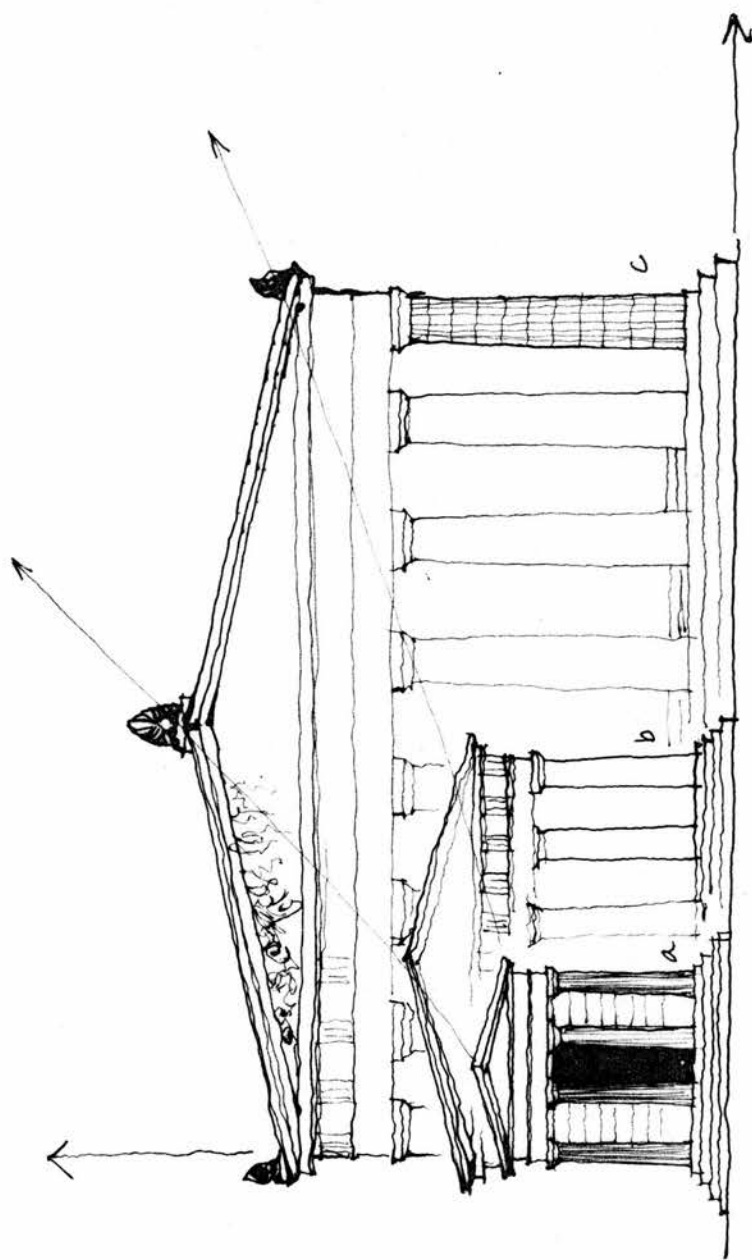


Figure 1.12. Elevations of the three Greek temples, (a) a three-bay prostyle temple, (b) the Temple of Aphaia at Aegina, and (c) the Parthenon at Athens.

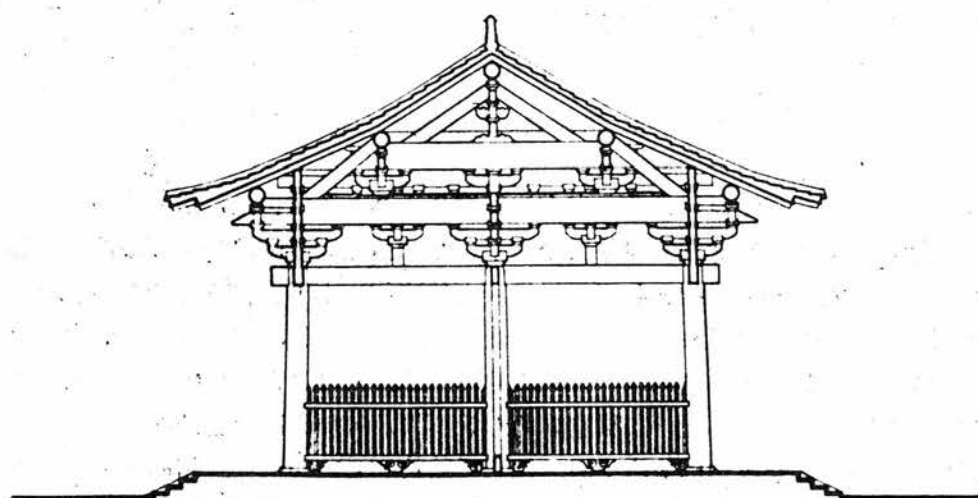
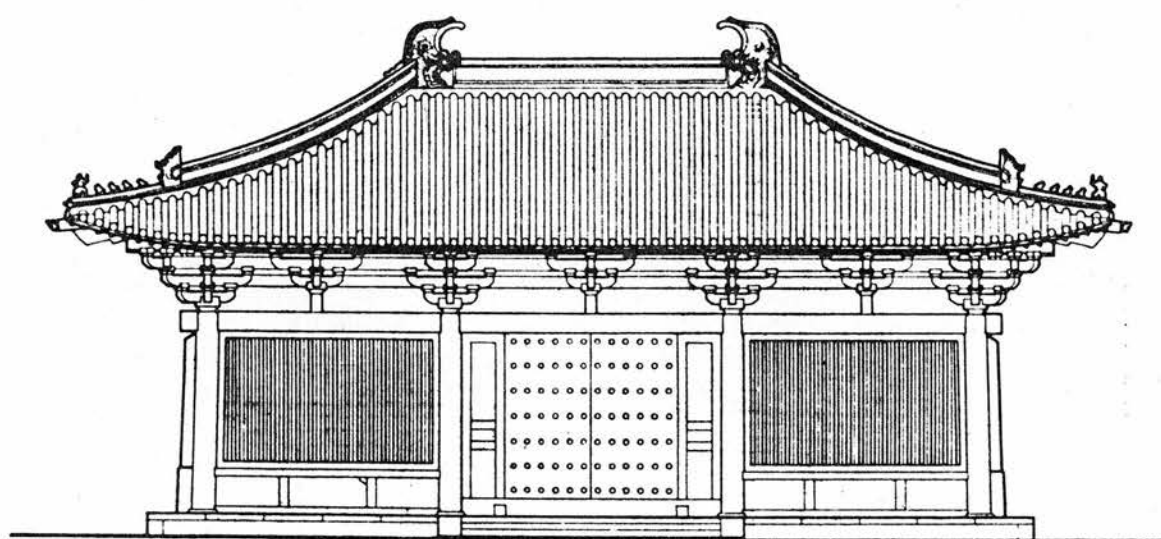


Figure 1.13. The gate-house of the *Dule Temple* 獨樂寺 at Jixian 薊縣, Hebei 河北, (from Liu, D.Z., 1980).

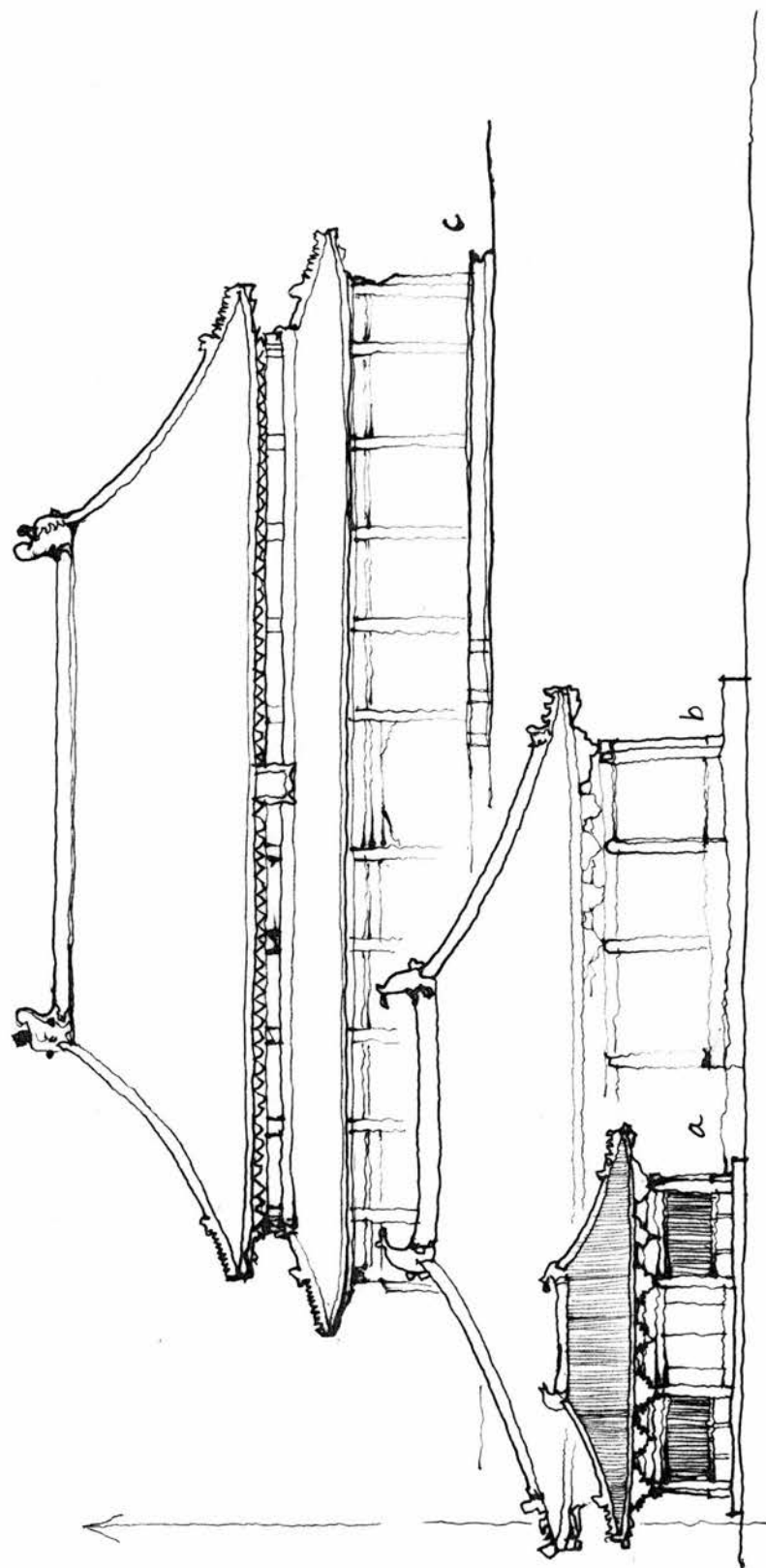


Figure 1.14. Elevations of three buildings of CCA, (a) the gate-house of the Dule Temple  
 獨樂寺 at Jixian 薊縣, Hebei 河北, (b) the main hall of the Foguang Temple  
 佛光寺 at Wutai Shan 五台山, Shanxi 山西 province, and (c) the Taihe Dian.

buildings is very similar, but that their scale is different. This means that there is a certain form (a basic form) which is guaranteed by the proportions of each building.

### **1.3.4 Three column-styles in Greek temple architecture and five roof-styles in CCA**

There are three types of column in Greek temple architecture, namely Doric, Ionic, and Corinthian. Two Greek temples may be of exactly the same size and form, but can be made to look quite unlike by the use of different column-styles. These different styles represent the differing aesthetic tastes of the designers.

The Greek Doric column is planted directly on the stylobate without base or moulding. In the case of the Parthenon, its capital, with a projecting echinus, is separated from the shaft by vigorous annulets with sculptured neckings (fig.1.15a). The column has a height, including the capital, of from 4 to 6 times the diameter at the base during the Hellenic period, and up to 7 times in the Hellenistic.<sup>21</sup> The shaft has a slightly convex profile, and this is called entasis. It has been found in temples of the early sixth century BC: in the Temple of Apollo at Corinth (540 BC); in the Temple of Apollo at Delphi (510 BC); in the Temple of Aphaia at Aegina (490 BC) in Greece; and in Italy in Temple 'C' at Selinus (550-530 BC); in the 'Basilica' at Paestum (530 BC); and in the Temple of Zeus at Agrigento. Figure 1.15b shows the Temple of Aphaia at Aegina. Here, all the rules of the Doric order are respected: in the regular plan of the cella with pronaos and opisthodomos; in the principal chamber divided into three aisles by two Doric colonnades, each with a superimposed order; and in the design and proportions of the entablature.

Doric is the earliest of the Greek column-styles. The Ionic column developed about a hundred years later and belongs to the east. Ionic columns, including capital and shaft, are

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<sup>21</sup> Fletcher, Banister, *Sir Banister Fletcher's a History of Architecture*, (the 17th revised edition, ed. R.A.Cordingley), (The Athlone Press, London, 1961), p111.

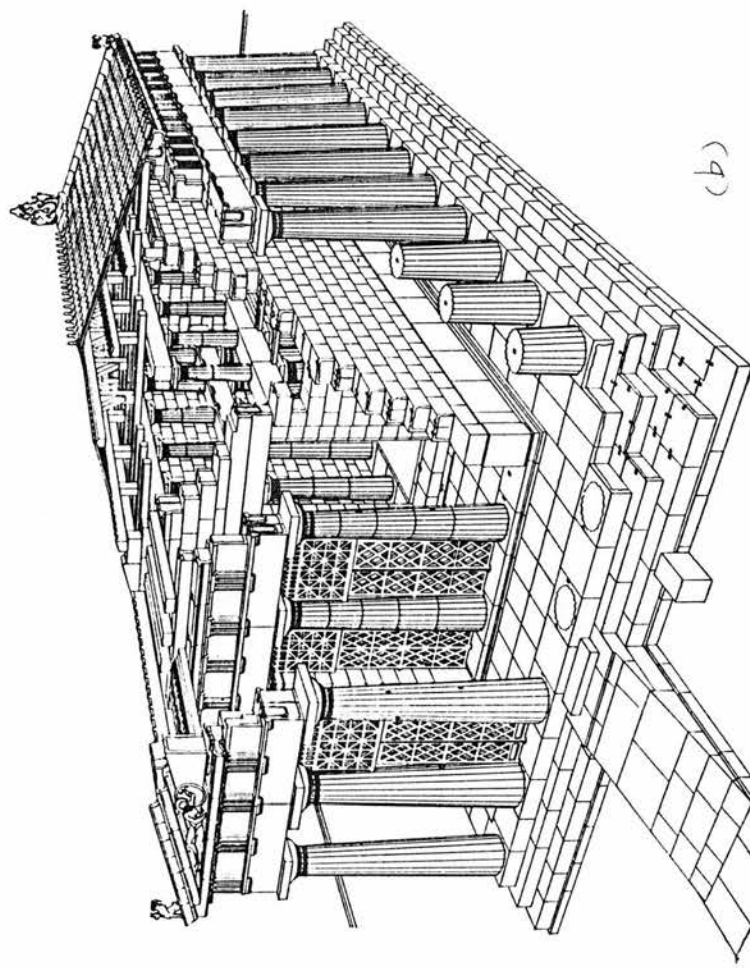
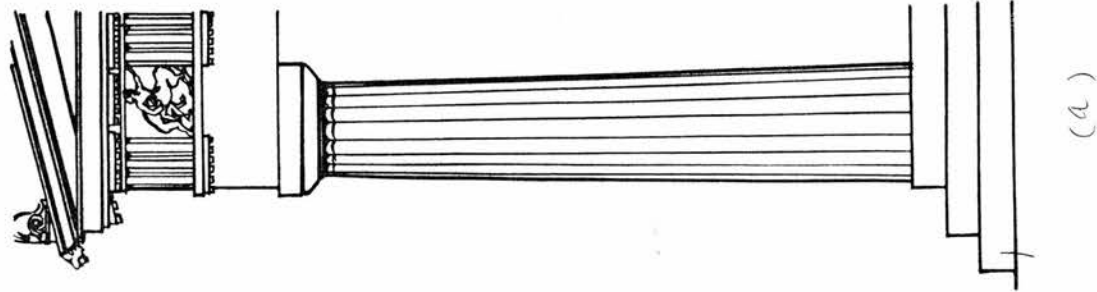


Figure 1.15. (a) The Doric Order of the Parthenon at Athens (from Yarwood, D., 1992), and  
(b) the Temple of Aphaia at Aegina (from Fletcher, B., 1987).



usually between nine and ten times their lower diameter in length, and have twenty-four flutes separated by flattened areas. Figure 1.16a shows the capital of an Ionic column in the Erechtheion on the Acropolis at Athens. It has two pairs of volutes or spirals, about two-thirds of the diameter in length, one pair on the front of the column, the other on the back, joined at the sides by a concave cushion, and usually ornamented with numerous flutes, fillets and beads. The volute scroll rests on an echinus, circular in plan, carved with an egg-and-dart moulding and resting on a bead moulding, with running palmettos where it disappears under the volutes. This arrangement has been found in buildings of the sixth century BC, such as the Archaic Temple of Artemis at Ephesus (560), the Temple of Hera at Samos in Asia Minor (575 BC), the Temple on the Ilissus at Athens (449 BC), the Temple of Apollo at Didyma, and the Temple of Nike Apteros at Athens.

The Erechtheion on the Acropolis in Athens was one of the finest Ionic temples in Greece (built 421-406 BC). The building consists of a rectangular core (38 by 75 feet) to which various elements are annexed. On the east, the facade is composed of an Ionic portico of six columns. Figure 1.16b shows the western elevation of the Erechtheion. A gem of the Ionic style, with four columns across the front and one behind at either side, it extends straight out from the wall. The most distinguishing feature of the Ionic capital is perhaps the appearance of the volutes and the concave moulding.<sup>22</sup> At the west end of the south side a low porch projecting at higher ground level, consists not of columns but of statues of young girls, the Maidens, of which there are four in front and four behind. The entablature incongruously resting on the maidens' heads is Ionic, but has a dentil frieze and supports a roof of flat slabs. The main features of the Ionic column-style are displayed in this building.

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<sup>22</sup> "The columns combine lightness of proportion with vigorous flutings and graceful decoration; the upper tonis of the Attic bases are decorated with interlaces; broad neckings are carved with anthemion ornament; and the capitals have wide volutes whose spirals are underlaid with fillets. The opening is crowned by a cornice profiled with honeysuckle, where palmettos and lotus flowers nestle in the curve of the cyma; and acanthus cups and elegant convolvulus spill from the spiral consoles at either side." Lloyd, Seton, & Roland, Martin, *Ancient Architecture: Mesopotamia, Egypt, Crete and Greece*, (Abrams, New York, 1974), p 231-235.

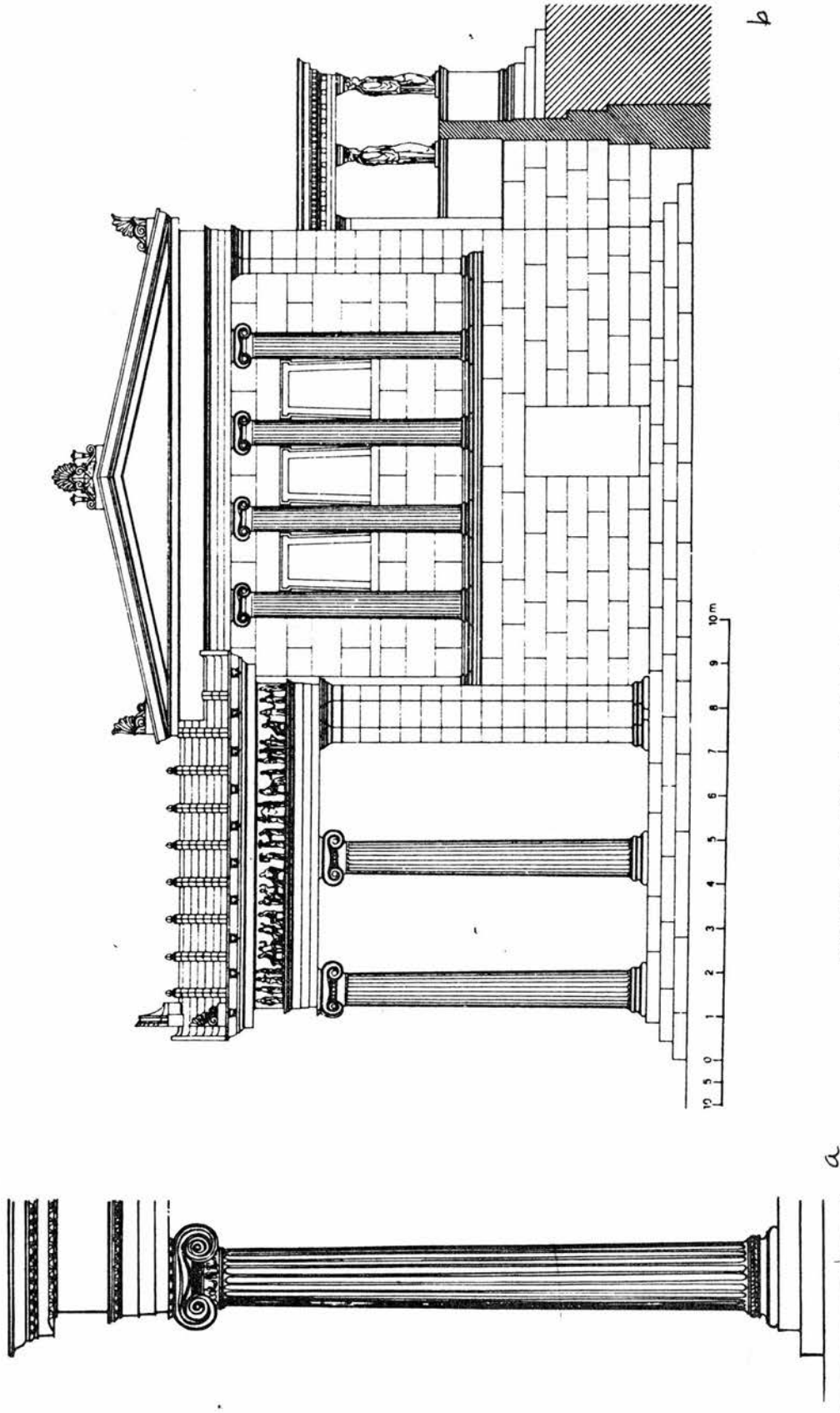
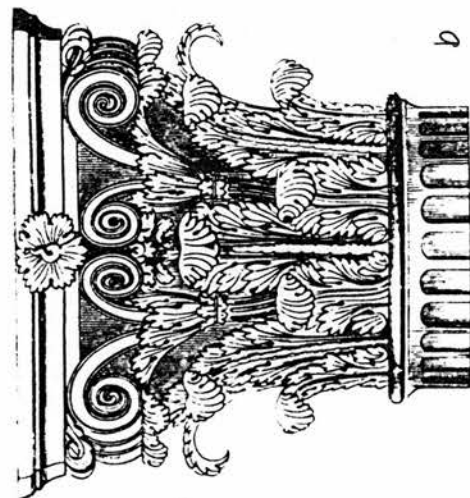
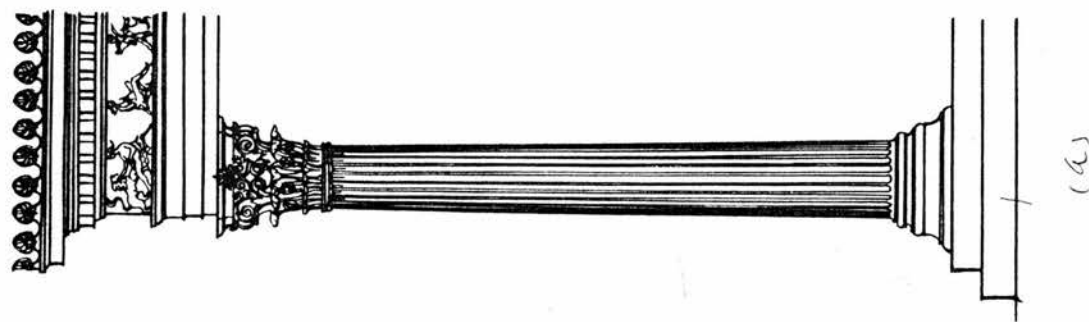
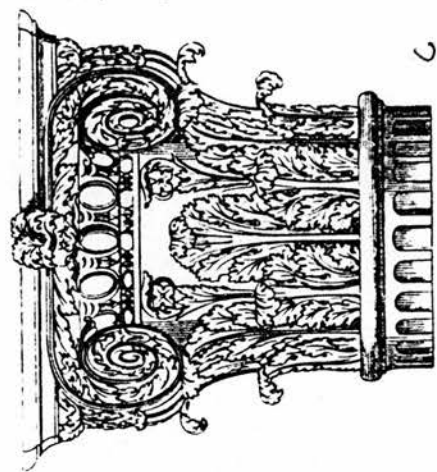


Figure 1.16. (a) The Ionic Order from the Erechtheion (from Yarwood, D., 1992), and (b) the western elevation of the Erechtheion.





Interior of Pantheon, Rome.



Arch of Septimius Severus, Rome.

Corinthian and Composite Capitals reduced from TAYLOR and CRESY'S *Rome*.\*

\* *The Architectural Antiquities of Rome*, by G. L. Taylor and Cresy, Architects. London, 1821.

Figure 1.17. (a) The Corinthian Order of the Monument of Lysicrates at Athens (from Yarwood, D., 1992), and (b&c) Corinthian capital.

The Corinthian column-style appeared in Greek architecture in the fifth century BC as a decorative variant of the Ionic, the difference lying almost entirely in the column capital (fig.1.17b,c). "The perfected type has a deep, inverted bell, the lower part of which is surrounded by two tiers of eight acanthus leaves. Each face of the moulded abacus is curved outwards to the corners, where it either ends in a point or is chamfered."<sup>23</sup> The distinctive capital is much deeper than the Ionic, and though of variable height at first, settled down to a proportion of about one and one-third diameters in length. It was to reappear in slightly variant forms on the interior orders of the Greek Tholos at Delphi (400 BC), the temple of Athena Alea at Tegea (360 BC), the Tholos of Epidaurus (350 BC) and the temple of Zeus at Nemea about twenty years later. Figure 1.17a shows one of the most splendid examples of the Corinthian column in the Choragic Monument of Lysicrates at Athens, built in 334 BC.

We suggest that the three types of column, Doric, Ionic and Corinthian, subdivide Greek temples into three different styles, which represent differing aesthetic tastes. Similarly, the different types of roof in CCA subdivide the form of the individual building into different styles, which, as with the three column-styles in Greek temples, represent differing aesthetic tastes. There are five roof-styles in CCA (fig.1.18): *Wudian* 廡殿 (hip roof), *Xieshan* 歇山 (hip and gable roof), *Xuanshan* 懸山 (overhanging gable roof), *Yingshan* 硬山 (gable roof) and *Cuanjian* 攢尖 (conical roof).

The *Wudian* 廡殿 (hip roof) is characterised by its simple outline. It is the oldest roof-style in CCA. Figure 1.19 shows the oldest extant example of *Wudian* 廡殿, the main hall of the *Foguang Temple* 佛光寺 (temple of Buddha's light) on the sacred Buddhist mountain, *Wutai Shan* 五台山, Shanxi 山西 province, and built in 857. The temple was one of the 'Ten Big Buddhist Temples' of the *Tang dynasty* 唐朝 (618-907). The hall, measuring 36.27 m. in length and 20.26 m. in breadth, has a single eave hip roof, and a very wide overhang of

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<sup>23</sup> Fletcher, Banister, *Sir Banister Fletcher's a History of Architecture*, (the 17th revised edition, ed. R.A.Cordingley), (The Athlone Press, London, 1961), p105.

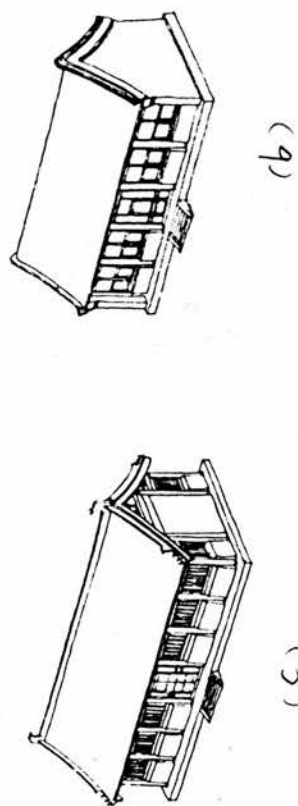
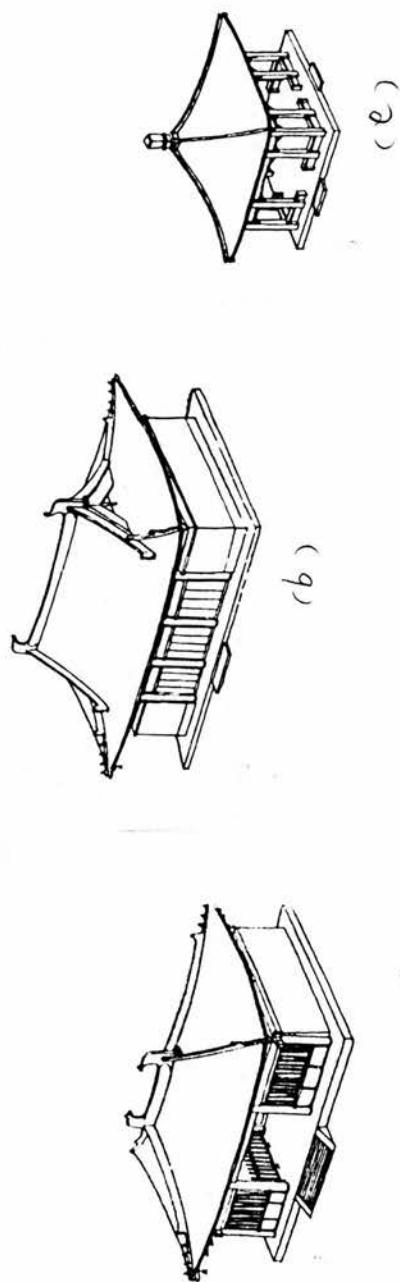
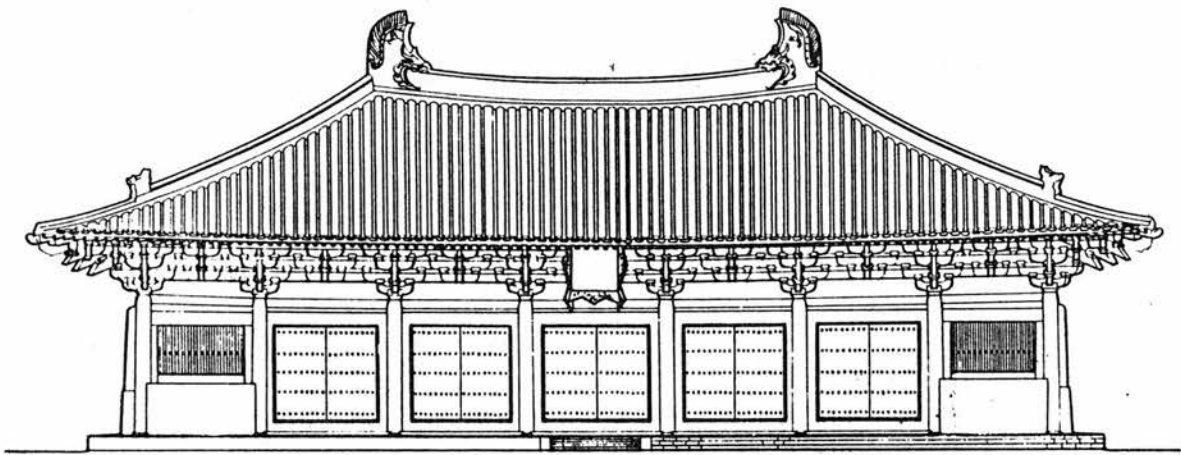


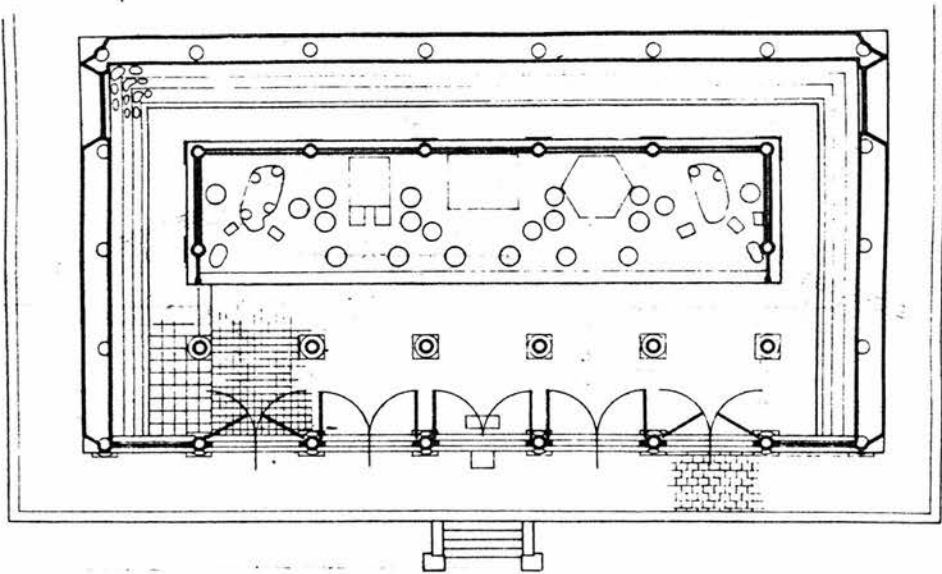
Figure 1.18. The five roof-styles in CCA: Wudian 廡殿 (hip roof), Xieshan 歇山 (hip and gable roof), Xuanshan 懸山 (overhanging gable roof), Yingshan 硬山 (gable roof) and Cuanjian 攢尖 (conical roof).

Figure 1.19. The main hall of the *Foguang Temple* 佛光寺 on the sacred Buddhist mountain, *Wutai Shan* 五台山, *Shanxi* 山西 province, (a) the front elevation, and (b) the plan (from Liu, D.Z., 1980).



0 1 5 M.

山西五台县佛光寺大殿正立面图 (a)



0 5 10 M

山西五台县佛光寺大殿平面图 (b)

4.20 metres, about one half of the height from ground level to the eaves. A thick screen-wall encloses the sides and the back. The five centre bays to the front are equal, and open fully with solid nail-studded doors.<sup>24</sup> The slightly curved lines of the eaves respond to the curve of the main ridge. The bold and massive structure of the columns, beams and brackets, together with the three main horizontal lines - ridge, eaves and podium - give the elevation an imposing and reposeful appearance.

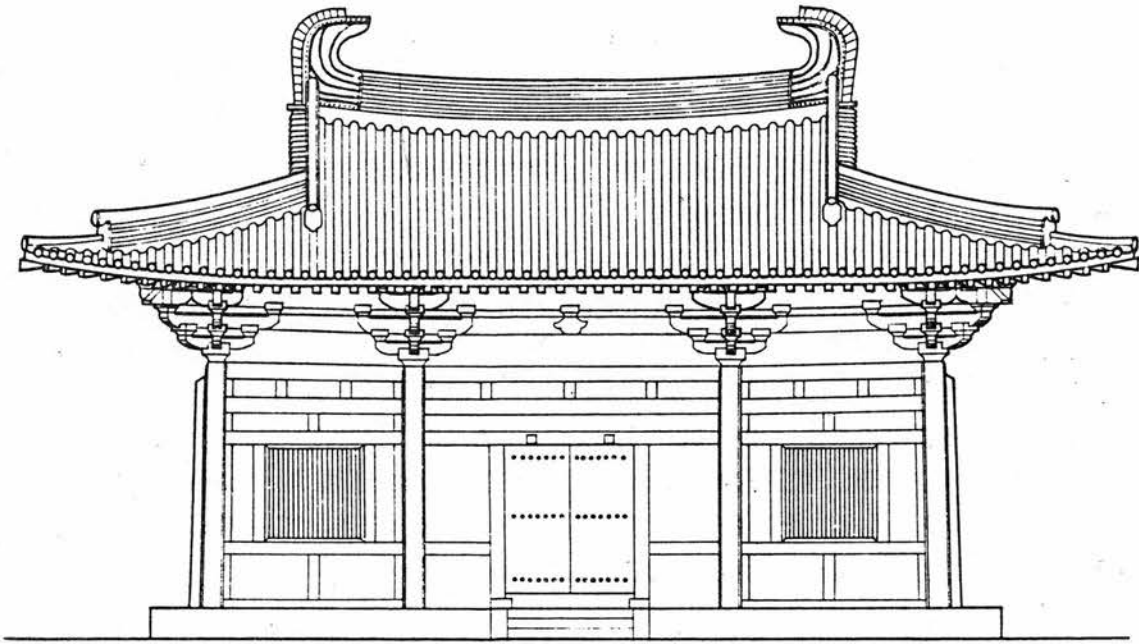
One of the most outstanding examples of *Wudian* 廡殿 is perhaps the *Taihe Dian* 太極殿, the main hall of the royal palace of the *Ming dynasty* 明朝 (1363 - 1644) and the *Qing dynasty* 清朝 (1644-1911). The *Taihe Dian* (fig.1.14c) has a double-eaved hip roof that is supported by rafters on bracket-sets and columns. The large roof, slightly curved, and the horizontal eaves and the shadows they create, together with the horizontal tiers of the platform, express the reposeful, solemn nature of the architecture.

The *Xieshan* 歇山 (hip and gable roof) consists of a hipped roof surrounded by a peristyle. It has nine ridges. The earliest evidence of the use of the *Xieshan* 歇山 (hip and gable roof) was on the curved brick and clay model of the *Han dynasty* 漢朝 (206BC-AD263). Figure 1.20 shows one of the oldest extant examples of the use of the *Xieshan* 歇山, the main hall of *Nanchan Temple* 南禪寺 (Southern Meditation Monastery) on *Wutai Shan* 五台山, *Shanxi* 山西 province, built between AD 618 and 782. It has three bays by three, with its length exceeding its width, and a single-eaved hip-gable roof of gray ceramic tiles. Compared with *Wudian* 廡殿, the *Xieshan* 歇山 roof has more scope, for it is of ample mass.

The use of the *Cuanjian* 攢尖 (conical roof) roof can be seen in the clay model of the *Han dynasty* 漢朝 (206BC-AD263). In the early buildings, the *Cuanjian* 攢尖 roof was usually used in pavilions and Buddhist pagodas. It was used in the main halls of temples and palaces of the *Ming dynasty* 明朝 (1363-1644). The main characteristic of *Cuanjian* 攢尖 is the pyramidal roof with a strong vertical axis and isometric sides. There are four main types of

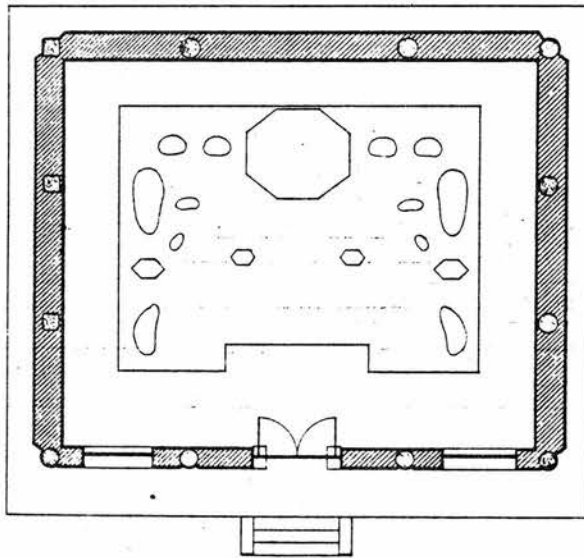
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<sup>24</sup> Liu, Laurence. G., *Chinese Architecture*, (Academy Editions, London, 1989), pp91-94.



a

0 1 2 3 M.



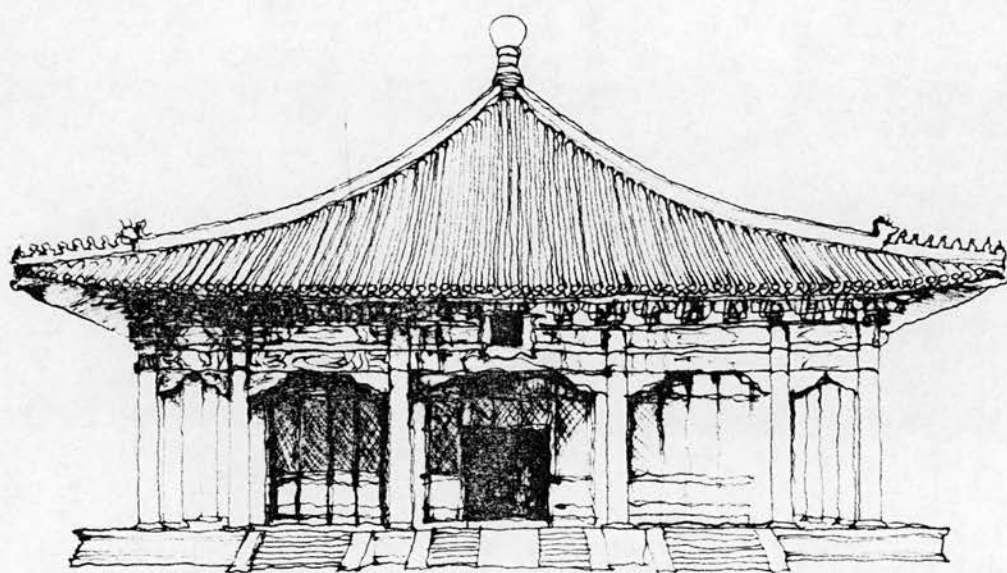
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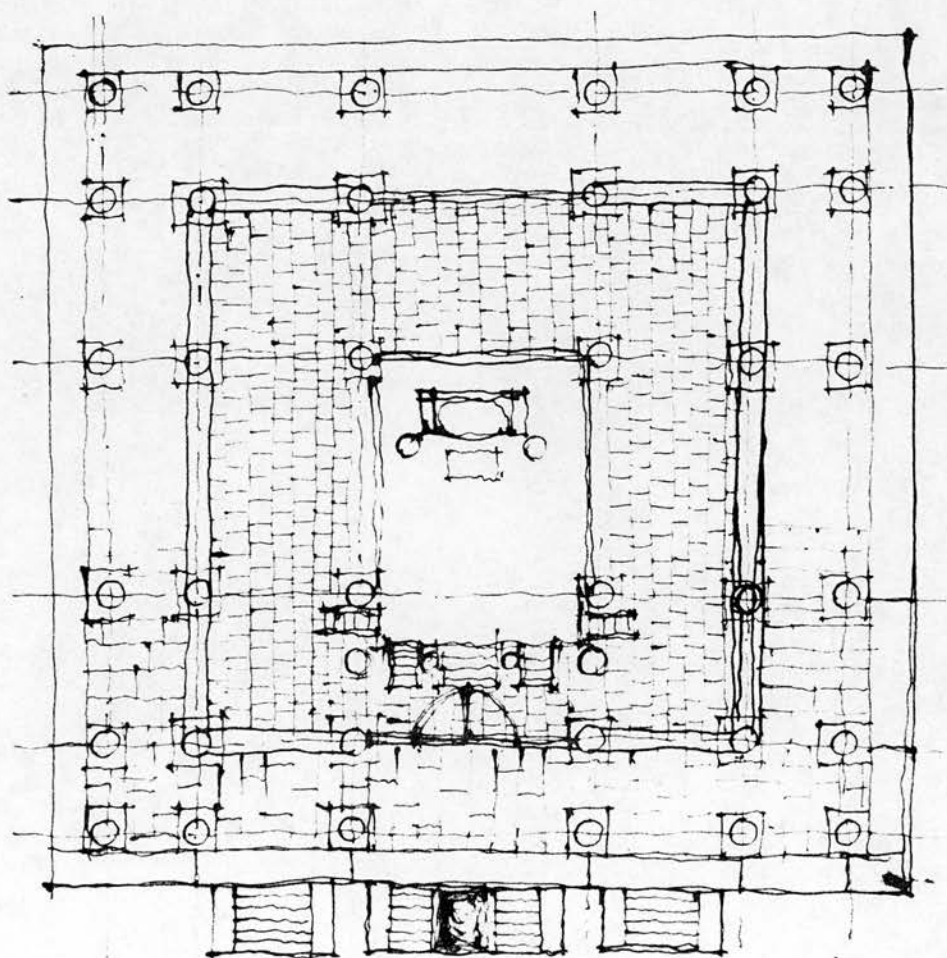
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Figure 1.20. The main hall of the *Nanchan Temple* 南禪寺 on *Wutai Shan* 五台山, *Shanxi* 山西 province, (a) the front elevation and (b) the plan (from Liu, D.Z., 1980).





a



b

Figure 1.21. The Zhonghe Dian 中鉅殿, (a) the front elevation and (b) the plan.



*Cuanjian* 攢尖 used in CCA: square, circular, hexagonal and octagonal. Usually a building with a square plan has a square *Cuanjian* 攢尖 roof. Figure 1.21 shows a building with the square *Cuanjian* 攢尖 roof, the *Zhonghe Dian* 中齋殿, one of the three main halls of the Forbidden City at Beijing, built between 1407 and 1421. It is a square building. Its four curved ridges meet at the top, and the finial is gilt. The colonnades and galleries encircle a square, with five bays to the front; it stands upon a marble platform; and each of the four elevations is arranged in the same way.

A circular-plan building in CCA normally uses the circular *Cuanjian* 攢尖 roof. The earliest pavilion of circular *Cuanjian* 攢尖 can be found in the *Mogao Caves* 莫高窟, *Dunhuang* 敦煌, *Gansu* 甘肅 (dating from 366). Figure 1.22 shows one of the most outstanding examples of a circular *Cuanjian* 攢尖 hall, the *Qinian Dian* 祈年殿, the main hall of the *Tiantan Temple* 天壇 (Temple of Heaven) in Beijing, built in 1530. It stands inside a square courtyard and on top of a round white marble platform of three tiers. The hall has a complementary triple roof of blue glazed tiles capped with a golden finial. The blue, conical roof, supported by two concentric rings of 12 pillars and four large centrally- located columns symbolises the round, blue sky.<sup>25</sup>

The hexagonal *Cuanjian* 攢尖 roof is usually used in buildings with the same plan, and so is the octagonal *Cuanjian* 攢尖 roof. Figure 1.23 shows one of the oldest extant examples of octagonal *Cuanjian* 攢尖 building, the *Fogong Temple Pagoda* 佛宮寺塔 (Pagoda of the Buddhist palace) at *Yingxian* 應縣, *Shanxi* 山西, built in 1056. Built initially of wood, it has an octagonal plan, five floors, a height of 67.3 m. and a diameter at the base of 30.27 m. The ground floor is surrounded by covered verandahs which strengthen the whole edifice. The tower has two rings of columns firmly connected from floor to floor but inclined slightly to the centre, with the result that the outline also tapers towards the top. There are balconies cantilevered on every floor as well as the verandah on the ground floor. It is the tallest wooden structure in the world.

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<sup>25</sup> Ibid, pp38-39.

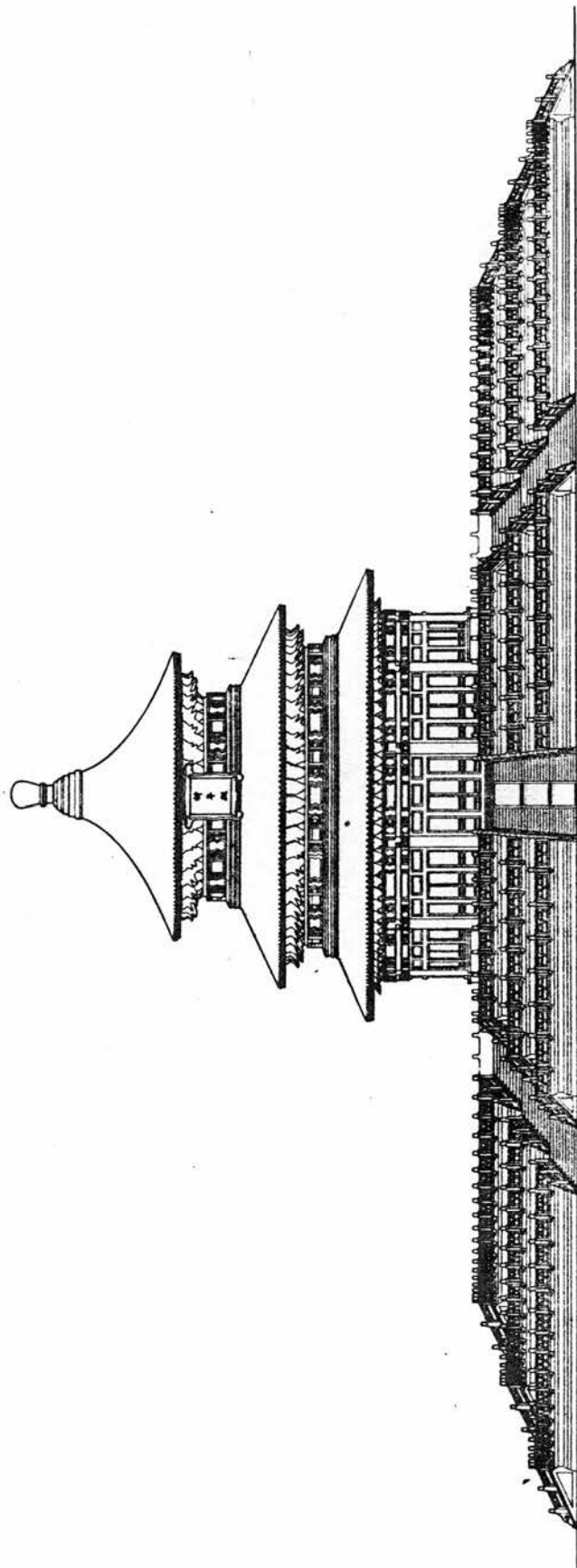


Figure 1.22. The *Qianian Dian* 祈年殿, the main hall of the *Tiantan Temple* 天壇 (Temple of Heaven) in Beijing (from Liu, D.Z., 1980).

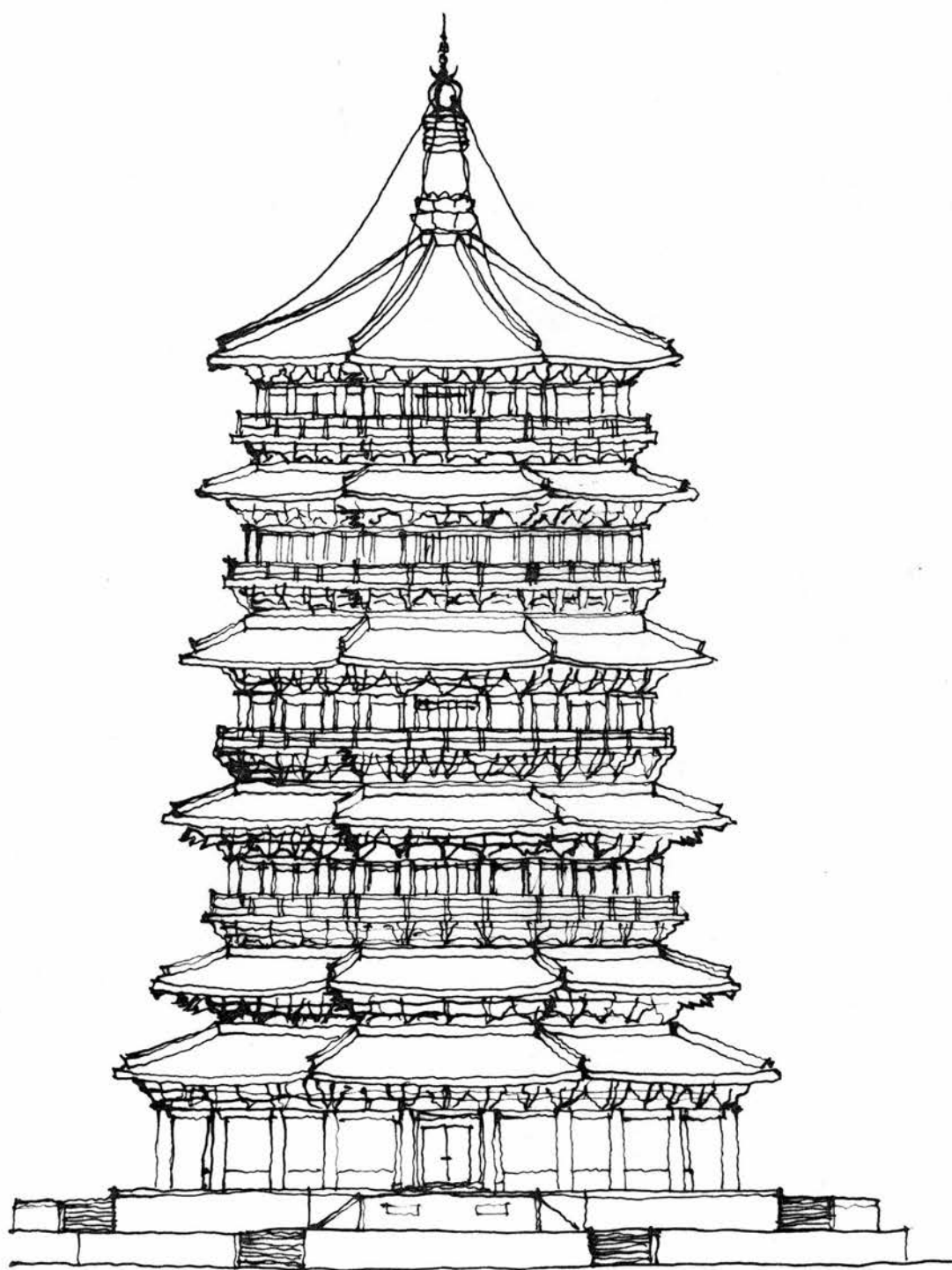


Figure 1.23. The *Fogong Temple Pagoda* 佛宮寺塔 (Pagoda of the Buddhist palace) at *Yingxian* 應縣, *Shanxi* 山西.

The *Xuanshan* 懸山 (overhanging gable roof) and *Yingshan* 硬山 (gable roof) roofs are two other roof styles, ranking in importance after the *Wudian* 廡殿 (hip roof), *Xieshan* 歇山 (hip and gable roof), and *Cuanjian* 攢尖 (conical roof). In *Xuanshan* 懸山 (overhanging gable roof), the roof hangs over the end wall, and at each end of the gable there is an eave board. *Yingshan* 硬山 (gable roof) appeared after the *Yuan dynasty* 元朝 (1271-1368) when brick began to be popular in China. But nevertheless very few were used in important buildings.

The five roof-styles are employed in the complex according to the 'role' of the buildings, as in the Forbidden City at Beijing. The *Wudian* 廡殿 (hip roof) is used in the most important buildings, such as the Taihe Dian. The *Xieshan* 歇山 and *Cuanjian* 攢尖 are ranked immediately after the *Wudian* 廡殿. The *Xuanshan* and *Yingshan* normally do not feature in major buildings.

Usually the three Greek column-styles are called the three Orders of CWA, and have been described by Vitruvius. In the course of the third and fourth books of his treatise, *De Architectura*, he mentions the origins of these three Orders, and states for which gods and goddesses each Order is appropriate.

The Orders of CCA are defined by the five roof-styles, for the different roof-styles have a function in architectural expression similar to that of the column-styles in CWA. Hence, we may call the five roof styles the five Orders in CCA. If we agree that an individual building plays its own role in the complex, the Orders in both architectures give the role categories to the buildings. The three column-styles in CWA and the five roof-styles in CCA classify a building as to category and aesthetic taste. Buildings in the same complex in CWA or CCA can be of different styles, or Orders. Our study will concentrate on just one Order in CWA and in CCA, the one found in the Parthenon and the one found in the Taihe Dian.

## 1.4 Conclusion

The formation of classical architecture was the product of two major processes. During the first phase the basic vocabulary and grammar of the classical language of architecture was developed, and the orders, the three column-styles in Greek temple architecture and the five roof-styles in CCA, eventually appeared. By the end of this period the two architectures had become standardised and stylized in space, form and decoration. The second phase was marked by refinement in both CWA and CCA. During this process the two architectures reached near-perfection and the canons of architecture became established. The completion of the first process in CWA was accomplished during the early sixth century BC in Greece; and in CCA at the time of the *Eastern Zhou* (770-256 BC). The completion of the second process in CWA was in the middle of the fifth century BC, and in CCA at the time of the *Tang dynasty* (618-907) and the *Song dynasty* (960-1279). Perfection was approached when the classical language of architecture reached its zenith in expression. The two examples we used in this study, the Parthenon and the Taihe Dian, are exemplars from the times when Greek temple architecture and CCA had arrived at their zeniths.

The development of classical architecture always goes hand-in-hand with the development of civilisation. Greek temple architecture arrived at maturity when Hellenic civilization took shape, and it approached perfection when that civilisation was at its peak. The continuity of Greek temple architecture reflects the continuity of Greek civilisation. Similarly, CCA arrived at maturity when Chinese civilisation took shape, and it approached perfection during the peaks of the civilisation. It means that the development of architecture is a result of civilisation. There is a relationship between architecture and the cosmos. Our study in the following chapters is based on this fact.

Another thing we should point out is that both CWA and CCA have spread beyond the limits of their original region and been accepted by people who have different cultural backgrounds. For instance, when Rome inherited Greek civilization, it did not adopt Greek

vernacular architecture, but only Greek temple architecture. Similarly, CWA spread to all the West during the Roman Empire and the Renaissance, but other European architecture did not. In Asia, CCA was used in all the areas where Chinese civilization had influence: in Korea, in Japan and in some South Asian countries. This shows that CWA and CCA have some universal qualities. The similarities we find in their origins, development and major characteristics are discussed in the following chapters.

There are three major common characteristics in Greek temple architecture and CCA: independence, the basic form and the use of Orders. We have seen that:

In the first place, a Greek temple or a building in CCA stands alone, without relation to other buildings. The individual building is a complete unit and plays its own role in the complex. The Parthenon and the Taihe Dian are such independent buildings.

Secondly, there is a basic form consisting of a three-bay prostyle building, with a closed interior space, a door-way, a three-bay portico, two symmetrical flanks, a rear, and a platform. Most of the important characteristics of classical architecture are found in this basic form. The treatment of space, form and decoration in the basic form reveals the essential nature of classical buildings. There is a basic form in each Greek temple, and the treatment of the Parthenon can be reduced to this basic form. This is also the case with the Taihe Dian.

Finally, there are three different column-styles in Greek temple architecture, Doric, Ionic and Corinthian; and five different roof-styles in CCA, *Wudian* 廡殿 (hip roof), *Xieshan* 歇山 (hip and gable roof), *Xuanshan* 懸山 (overhanging gable roof), *Yingshan* 硬山 (gable roof) and *Cuanjian* 攢尖 (conical roof). The three column-styles in Greek temples and the five roof-styles in CCA provide a little variety for people of different aesthetic tastes. It is inevitable that the Orders should be mentioned when we study both architectures, but we shall not elaborate on them further and concentrate instead on our two exemplars, the Doric Parthenon and the hip roof hall (*Wudian* 廡殿) Taihe Dian.

In this picture of CWA and CCA many similarities in the development and characteristics of both architectures have emerged. Many interesting questions have arisen as a result.



Moving within this general framework of CWA and CCA, we shall concentrate in the next chapter on two notable buildings, the Parthenon on the Acropolis at Athens and the Taihe Dian in the Forbidden City at Beijing. We are going to describe the treatment of location, space, form and decoration of the two buildings, and give an account of their historical and cultural backgrounds.



## Chapter II

# THE PARTHENON AND THE TAIHE DIAN

We have briefly described the origins, development, buildings and some of the important characteristics of CWA and CCA. In this chapter we are going to introduce their two finest fruits, the Parthenon and the Taihe Dian. The Parthenon is one of the most important proofs of Greek civilization; and also the most well-known Greek temple. For nearly two centuries, much research about it has been done by dedicated scholars all over the world. Some beautiful surveys and drawings have been published. The Taihe Dian is one of the most important extant buildings of CCA, and is CCA at its best. During the last few decades many studies of it have been done. These studies of the Parthenon and of the Taihe Dian help to provide a basis for our comparison of the two buildings.

The Parthenon is the full flowering of the Doric. It was built when Greek temple architecture was at its peak, and it came as near to perfection as is humanly possible, both in design and in execution.<sup>26</sup> The Taihe Dian is one of the most important products of CCA. It was a *Wudian* 庑殿 (hip roof) of the highest rank (double-eaved). The two buildings occupied a similar position in their respective cultures, and had a similar function as settings for the most important rituals and ceremonies, and as symbols of their dedicatees. In the

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<sup>26</sup> Lawrence, Alexander. W., *Greek Architecture*, (Penguin Books, Harmondsworth, 1967), p83.

following studies, we are going to describe the historical and cultural back-grounds of the Parthenon and the Taihe Dian and their architectural treatment. An account of the historical back-ground, and of the social and religious contexts of the two buildings will help in a comparison of their architectural treatment, and will let us go on to a broader study of expression in CWA and CCA in the following chapters.

## **2.1 The Parthenon**

### **2.1.1 Historical background**

Ancient Greek civilization consists two major phases: the prehistoric and the classical. Classical Greece emerged about 1,100 BC. It comprised the Dark Age (1,100-650 BC), the Hellenic period (650-323 BC) and the Hellenistic period (323-30 BC). The Hellenic period was the most glorious age for Greek art and architecture.

After the Dark Age, marked by a few centuries of economic, political and cultural poverty and silence, the end of the eighth century BC saw a revival of the Greek world. Some communities became richer by overseas trading. They formed larger city-states (the polis), such as Sparta, Athens, Corinth and Argos. Athens was not a leading state of the Greek world until it developed a truly democratic constitution late in the sixth century BC. When the Persian invasion was repulsed at Marathon in 479 BC, the Greeks of the Aegean turned to Athens for leadership. Gradually the alliance was transformed into an empire.<sup>27</sup>

The Athenians' power expanded in the 470s and 460s, as they took the offensive against the Persians. "The climax of this offensive was reached in the early 460s when the Athenian commander Cimon won a battle in Pamphylia in southern Asia Minor, the battle of

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<sup>27</sup> Fletcher, Banister, *Sir Banister Fletcher's a History of Architecture*, (the 19th revised edition, ed. J.Musgrove), (Butterworths, London, 1987), p13.

the Eurymedon. The suppression of a revolt from Athens by the northern Aegean island of Thasos in the mid 460s was another landmark.”<sup>28</sup> The wars with Persia ended in about 449 with the peace of Callias, and two years later the building of the Parthenon began.

In 446 the war between Athens and the Peloponnesian League, the so-called First Peloponnesian War, ended in victory for Athens. The existence of the Athenian Naval Empire was recognised (map.i). "Athens was free now to expand to the north, where in 437 she fulfilled an old dream by establishing a settlement at the timber-rich site of Amphipolis; to the east, where she imposed her authority more firmly on Samos, which had revolted unsuccessfully in 440/39; and to the west, where she made a series of alliances, perhaps hoping for uninterrupted supplies of the timber which she needed for her navy.”<sup>29</sup> In 432 BC the building of the Parthenon was completed. Shortly after, a decline of the Empire followed the second Peloponnesian War (431-404 BC), which Athens lost.

The Parthenon on the Acropolis at Athens was built during a period when the Athenian Empire was at its peak. Pride in the military and political successes of the Athenians in the middle of the fifth century BC caused the Parthenon to be established as a setting for the rituals and ceremonies of the nation and as a symbol of the patroness of the city, Athena. Aristocrats such as Cimon and Pericles, by their political and military leadership, channelled public wealth to subsidise the buildings and sculptures on the Acropolis.<sup>30</sup>

The Parthenon was dedicated to Athena, one of the twelve Olympians.<sup>31</sup> Its large cella was built to house the cult-statue of the goddess. The existing Parthenon is the third one.

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<sup>28</sup> Hornblower, Simon, *The Greek World, 479-323 BC*, (Routledge, London, 1991), p142.

<sup>29</sup> Ibid, p142.

<sup>30</sup> Ibid, p144.

<sup>31</sup> The twelve Olympians:

Zeus - The supreme god, and ruler of the sky.  
Hera - Wife of Zeus, and goddess of marriage.  
Apollo - God of law and reason, art, music and poetry; founder of cities.  
Athena - Goddess of wisdom and learning.  
Poseidon - The sea god.  
Dionysos - God of wine, feasting and revelry.  
Demeter - Goddess of earth and agriculture.  
Artemis - Goddess of the chase.

The older temples were destroyed by the Persians. After the conclusion of peace with the Persians in the fifth century BC, the Athenians decided to rebuild the Parthenon immediately; for the temple was not only to house the divinity of the state, but was also intended to be a symbol of its power, and a proof of its glory for future generations.<sup>32</sup> The project began in 447 BC. The workshops of all Greece were pressed into service and masons' yards were busy with the creation of the subtlest of the human and divine.<sup>33</sup> In 432 BC came the completion and dedication of the building.

The architect of the Parthenon was Ictinus, working in partnership with Callicrates. Phidias was the sculptor of the cult-statue of Athena, and was probably responsible for designing the sculpture on the building, but tradition credited him with the general supervision of all Pericles's works.<sup>34</sup>

In the late fifth century BC the Acropolis, with the Parthenon, had lost its political and religious importance, but the Athenians continued to regard it as 'the City'. It remained the spiritual centre of Athens.<sup>35</sup> With the decline of Greek religion and politics after the Hellenistic age, the Parthenon, instead of remaining a religious and political centre, lay silent and isolated. Its gold and ivory statue was removed during the middle of the fifth century AD. Later, it became a Christian church, and a Roman church after the Latin crusade of 1204. Two hundred years later it was occupied by the Turks and used as a mosque. However, it remained in good condition until 1687, when the centre was blown out by an explosion of gunpowder stored in the cella. The whole roof and some of the sculptures on

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Hermes - Messenger of the gods.  
Aphrodite - Goddess of love and beauty.  
Hephaestus - God of fire, flame and forge.  
Ares - God of war.

<sup>32</sup> Hege, Walter, *The Acropolis*, (Ed. G. Rodenwaldt), (Basil Blackwell, Oxford, 1957), p 29.

<sup>33</sup> Brommer, Frank, *The Sculptures of the Parthenon: Metopes, Frieze, Pediments, Cult-statue*, (Thames and Hudson, London, 1979), p8.

<sup>34</sup> Lawrence, Alexander. W., *Greek Architecture*, (Penguin Books, Harmondsworth, 1967), p156.

<sup>35</sup> Ibid.

the pediments were destroyed. A little mosque was built in the ruins by the Turks.<sup>36</sup> In 1801 Lord Elgin removed some of the sculptures and sold them to the British Museum. In the early years of this century the northern colonnade was rebuilt. Not until recent times have people rediscovered this best example of Greek temple architecture, and its spell.

Today the Parthenon, a representation of the great ancient Greek civilisation, stands on the top of the Acropolis to welcome thousands upon thousands of admirers from all over the world. The temple itself has lost its original meaning and function. It is no longer a political and religious centre, but a master-piece of CWA, with its delicate craftsmanship and great beauty.

### **2.1.2 Cultural context**

By the middle of the fifth century BC, there were hundreds of Greek communities living around the shores of the Mediterranean. These communities were united by a shared devotion to their religion, and by their love of art and sport. Led by Athens, the great Hellenic civilisation spread from the central Aegean to the coastal towns of Turkey, north Greece, the black Sea coast and southern Russia; and from Sicily, south Italy, and Spain to north Africa (map.ii). The communities regarded themselves as basically similar, for each lived in a *polis*.<sup>37</sup>

The polis was essentially a male society; and male citizens joined together in making and implementing decisions affecting the community. "The origin of this activity doubtless lay in the military sphere and the right of warriors to approve or reject the decisions of their leaders; and the development of the polis is the extension of this practice to all aspects of social life, with the partial exception of religion."<sup>38</sup> In Athens, for instance, "all male citizens

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<sup>36</sup> Ibid.

<sup>37</sup> Murray, Oswyn, "Life and Society in Classical Greece", in *The Oxford History of Greece and the Hellenistic World*, (ed. J. Boardman, etc. Oxford University Press, Oxford and New York, 1991), p241.

<sup>38</sup> Ibid, p241.



participated, at least in principle, equally; while elsewhere particular rights would be confined to certain groups of the richer or better-born, thereby necessarily creating conflicts and a hierarchy of rights within the citizen body."<sup>39</sup> The deme had become an administrative unit, with a local official and a local assembly to control all aspects of local government.

There were two main occasions for creating art and architecture in classical Greece, the *symposion* and the festival. The *symposion* (male drinking group) embodies essentially an aristocratic form of culture practised in the classical age. Much of Greek poetry, music, and pottery had been created for such groups, whose character was remarkably uniform across the Greek world. It was a focus of social life.<sup>40</sup> Greek temples were the product of such an aristocratic form of culture. Then a festival was another social focus. In the Greek world the freedom of the individual was an important matter. "There is certainly an important sense in which the conception of the autonomy of the individual apart from the community is absent from Greek thought: the freedom of the Greek is public, externalized in speech and action."<sup>41</sup> Festivals became the focus of democratic culture, where the people could enjoy displays which were a combination of public feast, religious action, and art. The Parthenon, with the Acropolis, was a setting for the festival. Bigger spaces in the temple were required for the larger numbers of people at the celebrations.

Greek religion belongs to the class of ancient polytheisms.<sup>42</sup> The gods and goddesses were personifications of particular elements. The 'twelve gods' were recognised from the fifth century onwards. Most of them could be conceived of as living in Zeus's palace on the sacred Mount Olympus. Each individual Greek community paid special honour to particular gods and goddesses. Athena, for instance, was the divine patroness of Athens. Those

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<sup>39</sup> Ibid, p244.

<sup>40</sup> Ibid, p265.

<sup>41</sup> Ibid, p248.

<sup>42</sup> Parker, Robert, "Greek Religion", in *The Oxford History of Greece and the Hellenistic World* (ed. J. Boardman, J., etc. Oxford University Press, Oxford, New York, 1991), p 306.

gods and goddesses had human form; and they had been born, but would not age or die. Temples in each city or state were built to house the city's patron gods or goddesses in return for their protection:

In classical Greece, the polis, the city-state community, was of paramount importance and the individual was subordinated to it. Maintenance of the community depended on the maintenance of the families, the households. All aspects of life were under the protection of the gods, who were regarded as all-powerful, but similar to ordinary humans in their passions, desires and appetites. The essential concept in religious practice was that of contract, of obligation and the honouring of obligation. Humans - primarily as a community - called on the gods for protection, and made offerings to the gods to secure this. Foremost was the regular ritual of sacrifice, the offering of food, and religious practices centred on this. Sacrifices took place throughout the year, but there was always one principal annual ceremony or festival for each god in every community, in the sanctuary set aside for that cult. 43

To build a temple housing a god became an important action. The temple became a symbol of its dedicatee. For the building of this temple the best artists and craftsmen were drafted from all the Greek communities, and a large amount of money was collected from Athens and its colonies.<sup>44</sup> The temples were built for both religious and political purposes. In the Greek world, religion was united with politics. "So the goddess who had given her name to this city became its head."<sup>45</sup> Power in religious matters lay with those who had secular power: in the family with the father, in early communities with the king, and in

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<sup>43</sup> Fletcher, Banister, *Sir Banister Fletcher's a History of Architecture*, (the 19th revised edition, ed. J. Musgrove), (Butterworths, London, 1987), p15.

<sup>44</sup> "The total cost of the building (excepting that of the cult statue) is thought to have been over 500 talents. This is 30,000,000 drachmae, one drachma being roughly a day's wage. Most of the materials were free - the marble certainly - but wood had been purchased and perhaps some metals. If the main expenditure was on labour it averages out at a regular work force of at least six hundred at quarries and on the Acropolis, with many fewer after 438 when the only major operation was the completion of the pedimental sculpture and its installation. Over 11,000 cubic metres (some 30,000 tons) of marble were used in the building." Brommer, Frank, *The Sculptures of the Parthenon: Metopes, Frieze, Pediments, Cult-statue*, (Thames and Hudson, London, 1979), p222.

<sup>45</sup> Hege, Walter, *The Acropolis*, (Ed. G. Rodenwaldt), (Basil Blackwell, Oxford, 1957), p28.



developed city-states with the magistrate or even with the citizens' assembly.<sup>46</sup> The goddess was worshipped by the Athenians in her capacity as guardian of the city. The building of the Parthenon was undertaken for both religious and political reasons.

The Parthenon was used during the great Panathenaic Festival, a nation-wide celebration for Athena's birthday. Not only the Athenians, but also the people of the Athenian colonies and league states took part in the festival. During the festival, the Parthenon and the Acropolis were the central places of ceremony. A lively piece of evidence about its fifth-century BC form is this subjective interpretation of the Parthenon frieze. In the procession of the Festival the war equipment of bronze helmet, corselet and greaves, shield, thrusting spear and sword were displayed. They portrayed one of the main themes, the wars between the Athenians and their enemies, the glory and the grief of the nation. The goddess Athena, whose cult statues were placed in the Parthenon and in the open square on the Acropolis, was the main focus of worship during the festival. The sacrifice was held in front of the large cult statues of Athena. Hundreds of cows, and other sacrificial animals provided by the colonies and allies were sacrificed to Athena.

### **2.1.3 The treatment of space, form and decoration**

The Parthenon stands on the Acropolis, raised above the tumult of the city. Its colonnades bear high up into the clear air, and the west portico faces the blue Aegean sea. The free clouds move slowly over the temple, and its white and sparkling body is set off by the blue sky. In ancient times, when the Greeks came home from the sea, the first thing they saw was the Parthenon on the top of the sacred hill.

The Parthenon stands at the top of the Acropolis which rises up from the city, Athens. The hill, on the western side only, is connected to the city by a natural bridge, but on the

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<sup>46</sup> Parker, Robert, "Greek Religion", in *The Oxford History of Greece and the Hellenistic World* (ed. J. Boardman, J., etc. Oxford University Press, Oxford, New York, 1991), p 311.

other sides the rocks and walls rise above the plain to the flat top of the enormous calcareous rock. In ancient times, the city grouped itself round the Acropolis (fig.2.1). The Agora, the city square or market-place, was built to the north of the Acropolis. Figure 2.2 shows the plan of the Acropolis in Athens. The Parthenon is placed on the top of the hill, the Erechtheion placed on its north edge, and the gatehouse, the Propylaea, and the small temple, of Nike Apteros on the west edge. The space between the Parthenon, the Erechtheion and the Propylaea formed an open square, and in ancient times the cult statue of Athena was placed there.

## Space

The Parthenon is peripheral octastyle in plan (fig.2.3), with seventeen columns on the flanks. They stand on a crepidoma of three steps, measuring on the stylobate 30.88 m. by 69.51 m. (a ratio of breadth to length of about 4 to 9). There are two doorways, one at the east end, and one at the west. The former leads into the eastern cella, known as the *Hecalompedon*, and measuring 19.2 m. wide and 29.9 m. long. Inside it there are Doric colonnades on three sides, forming an ambulatory, with ten columns on each long side, and five across the west end, counting the angle columns twice. The western part of the naos, Athena's chamber, is entered from the opisthodomos by a large doorway. Inside the chamber four columns support the roof. The eastern cella and the western chamber are enclosed by massive walls about 1.22 m. thick.

The treatment of the eastern and the western porticos is similar. The whole temple is encircled by an ambulatory, measuring 2.74 m. wide on the two flanks and 3.35 m. to the front and rear. The pronaos or forward porch has six Doric columns on an upper platform of two steps. It and the opisthodomos are each about 18.3 m. by 3.66 m. The six columns are 1.67 m. in diameter and 10 m. high. The Doric columns on the ambulatory are about 1.83 m. in diameter at the base and 10.43 m. high (proportions of nearly 5.5 to 1). The angle

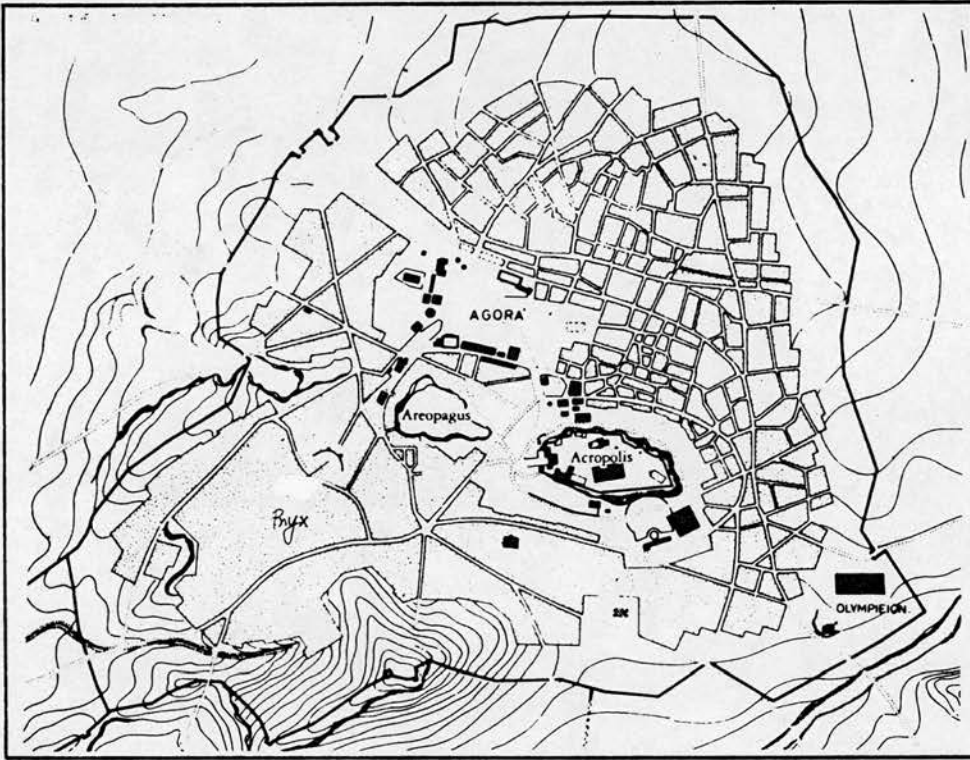


Figure 2.1. Rough plan of Athens during the time of Pericles; the residential quarters (dotted areas) can be seen spread out around the public buildings (black areas) (from Benevolo, L., 1980).

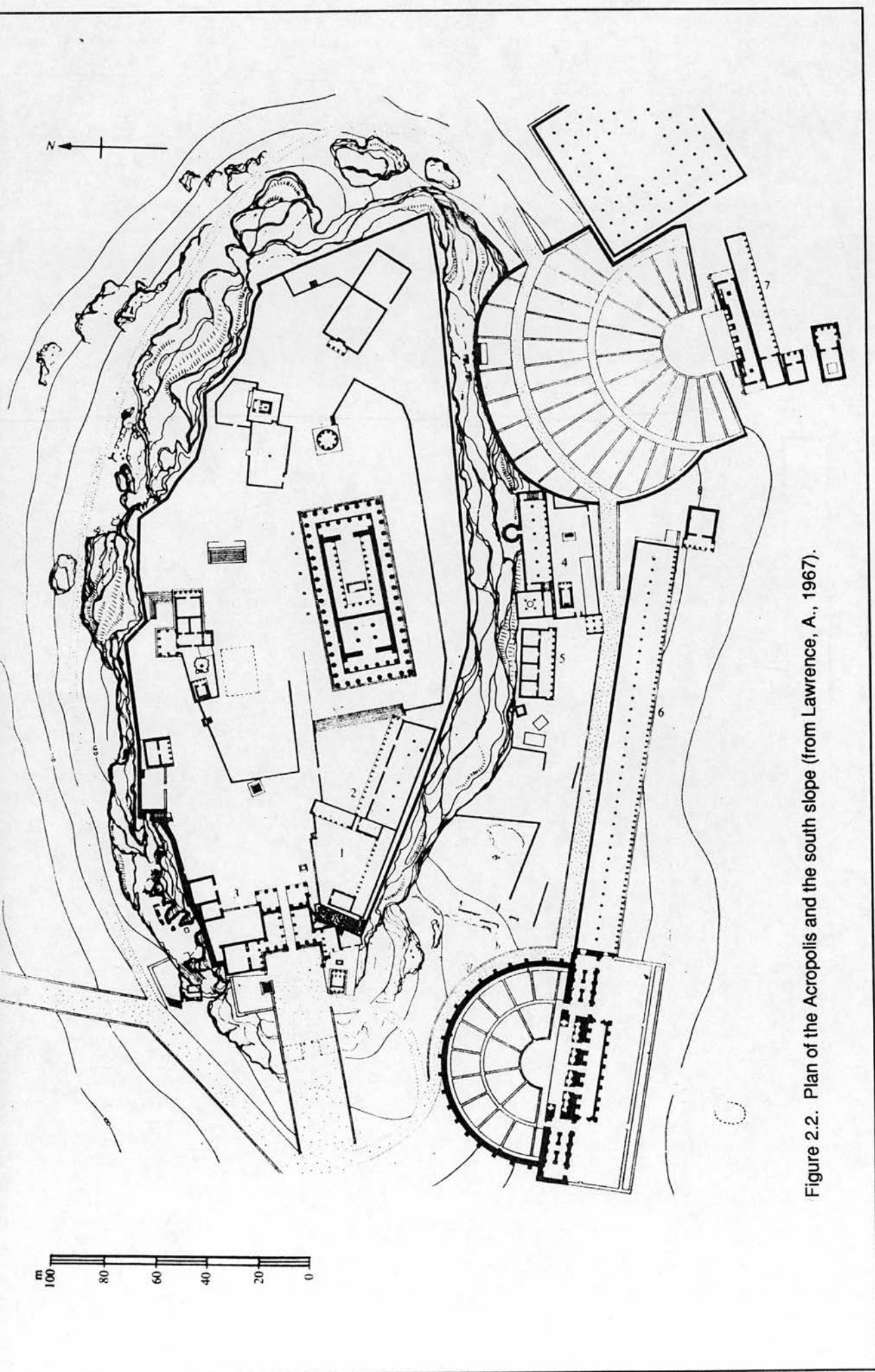


Figure 2.2. Plan of the Acropolis and the south slope (from Lawrence, A., 1967).



columns are slightly larger in diameter, 1.836 m. The pteron columns are spaced 4.27 m. from axis to axis (the ratio of intercolumniation to diameter being also 9:4). Because the corner columns were made slightly plumper the distances between these columns are somewhat shorter.

The interior of the temple is composed of the eastern cella and the western chamber. Each of them is an enclosed, dark and cuboid space. Figure 2.4 shows the section of the temple. The principal doorway of the Parthenon is on the east, and leads into the cella. The Doric colonnades on three sides of the cella make an ambulatory dividing the interior space into two spacious areas. Two-tiered colonnades, separated by an architrave, encircle the central space and change the scale of the Doric colonnades to half that of the exterior ones. There are no windows in the walls. The western chamber is also an enclosed space entered from the opisthodomos by a large doorway, with its ceiling resting upon four Ionic columns. There are no windows in the walls of this chamber. The two interior spaces stand on the same base raised above the platform of the temple. The pronaos and opisthodomos stand between the two enclosed interior spaces and the open galleries. The space between the columns is vase-shaped. Through the front colonnades a series of pictures of the city and landscape are framed.

## **Form**

The exterior form of the Parthenon is of a simple cuboid mass with a gabled roof. Figure 2.5 shows the western elevation of the Parthenon. There is a main ridge at the junction of two sloping roofs. So the elevations of the Parthenon consist of the two gable ends, the eastern and the western porticos, and the two flanks. Except for the sculptures, the treatment of the two porticos is exactly the same. The elevations are subdivided into three parts horizontally:

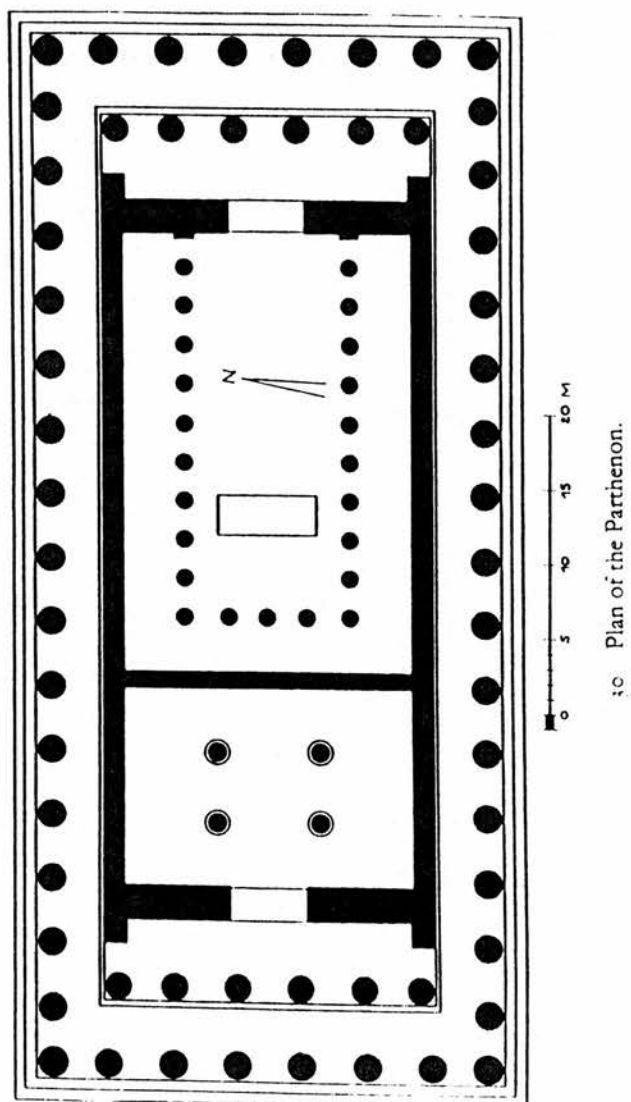


Figure 2.3. Plan of the Parthenon (from Ayrton, 1961).

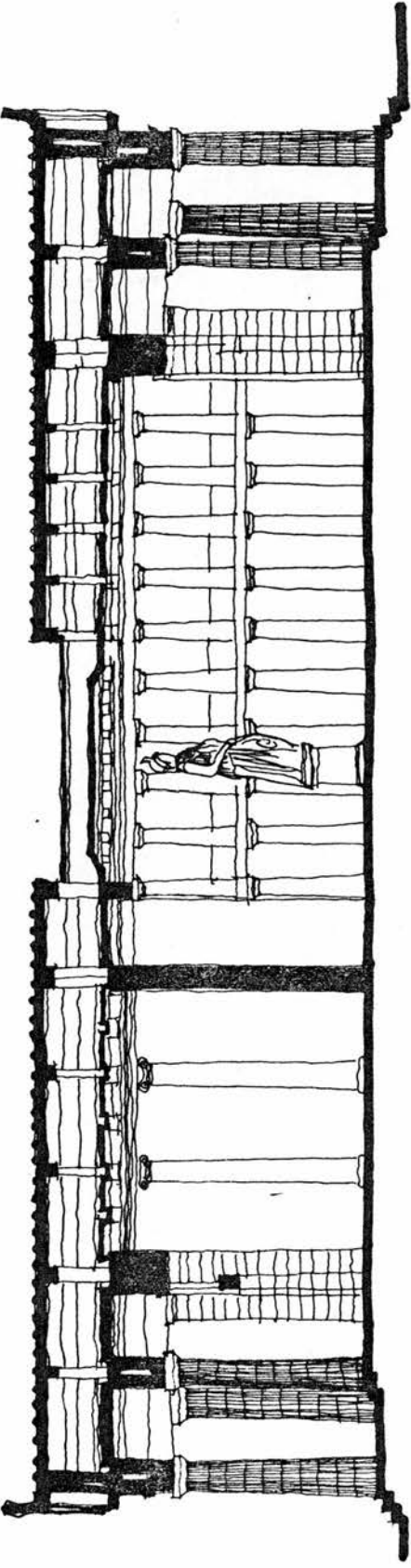


Figure 2.4. Section of the Parthenon (redrawing after Fletcher, B., 1987).



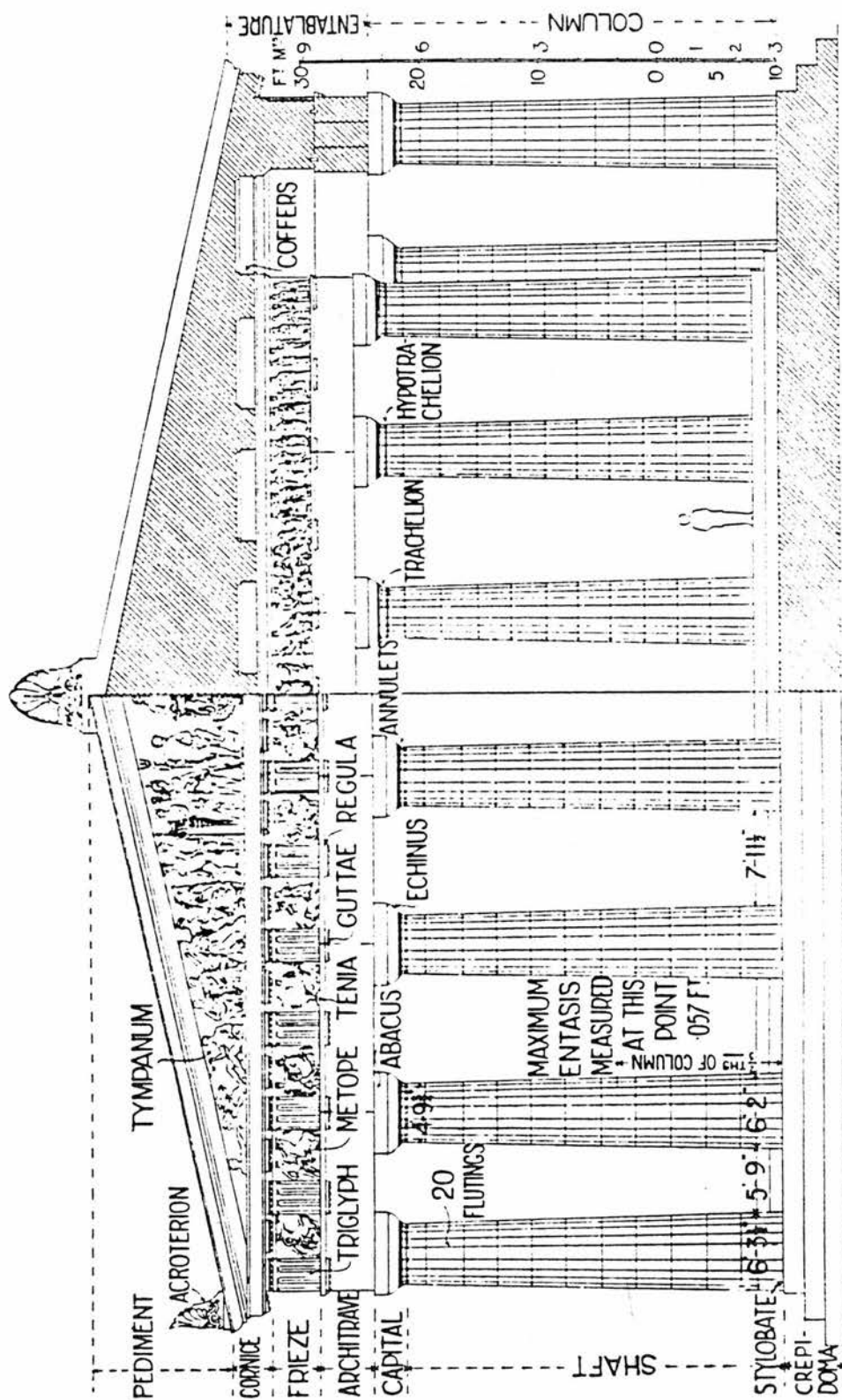


Figure 2.5. The western half-elevation and half-section of the Parthenon (redrawing after Fletcher, B., 1987).

Pediment, sloping roof and entablature.

Column, wall and doorway.

Platform.

The pediment of the Parthenon is in the shape of an isosceles triangle and has an inclination of 13.5 degrees. There is a large floral acroterion, about 2.74 m. high, at the apex and lower angles. At each corner of the lower angles, a lion's head is carved on the cornice of the pediment, facing outwards, but slightly turned towards the end of the temple. The tympana in the pediment were filled with groups of sculpture, 3.5 m. high at the centre, and about twice life-size.

On the two sloping roofs, four antefixes are allocated to each intercolumniation, and also six marble tiles. One layer of marble tiles is placed with the concave side upwards, and another is then laid, convex side up, to cover the gaps. The line of intersection of the two sloping roofs is covered by ridge-tiles and a row of upright antefixes. Ornamental attachments conceal the ends of the covering tiles, and they are decorated with palmettos facing outwards on both sides. The gutters are placed between the upright antefixes.

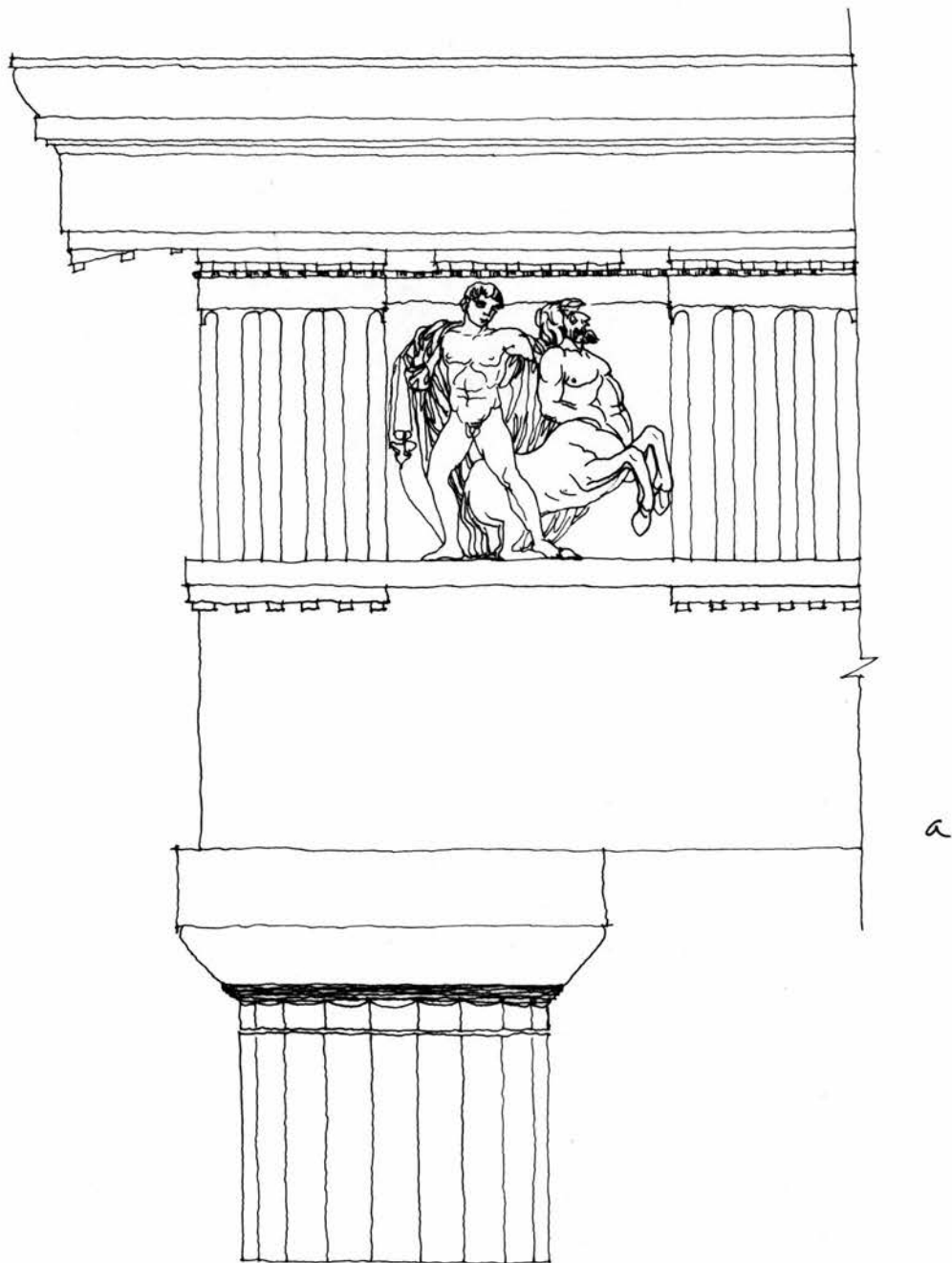
The height of the Doric entablature of the Parthenon is 1.75 times the lower diameter of the column. It is composed of three main divisions:

Horizontal Cornice

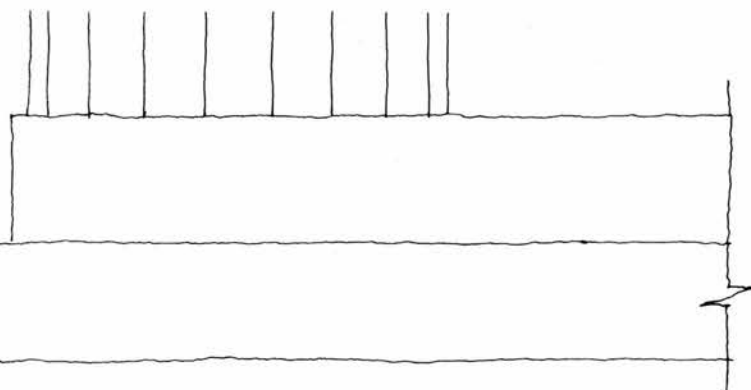
Triglyph and Metope, with frieze behind them

Architrave

Figure 2.6 illustrates the entablature and columns of the Parthenon. The architrave is the main beam. It is surmounted by a plain fillet called the tenia, made up of three slabs placed side by side; the outermost showing a vertical face in one plane (fig.2.6a). Below the tenia of the architrave are placed small drops (guttae). Above the architrave is a flat



a



b

Figure 2.6. (a) Capital, and (b) base of the Parthenon (redrawing after Normand, Charles, 1942).

projection, called a triglyph, with three channels cut in it; and between each triglyph is a relief called a metope. At the same height as the triglyphs and the metopes, but inside the colonnade, is a temple wall decoration in relief, called a frieze, surrounding the whole cella, and measuring 0.92 m. high and 160.93 m. long. Along the top of the frieze, triglyphs and metopes, runs a broad fillet, called the capital of the triglyphs. The soffit of the cornice has broad and shallow blocks worked on it called mutules, one of which is placed over each metope and each triglyph; while on the under surface are several rows of guttae. A triglyph is aligned over each column, and at the angles of the temple two triglyphs meet at a bevelled edge. Then, above the frieze, triglyphs and metopes, rests a horizontal cornice. The cornice has at the top a cymatium or gutter moulding resting on a bird's beak moulding. Below this is the corona or vertical face.

The front colonnades stand, without a base, directly on a crepidoma. The colonnades stand out from the shadows of the galleries, white marble columns against a dark background, and are the most salient characteristic of the Parthenon. The massive walls behind the flank colonnades are constructed solidly of fine, bonded masonry of white marble, bound together by clamps and dowels of iron which were polished after being inserted. The doorways of both the eastern and the western porticos are huge in scale, and are situated just under the architrave. The back walls and doorways set off the two colonnades, and the transition space and the entrance are thus emphasised.

The platform of the Parthenon is of a simple rectangular plan. It is composed of three steps (fig.2.6b). Each of them is about 0.31 m. high, and 0.61 wide. Some intermediate steps are provided at the centre of the east and west crepidomes. The stylobate has an upward curvature towards its centre of 4.9 cm. on the east and west facades, and of 10.57 cm. on the flanks.

In the Parthenon, several important refinements were made. The horizontal lines, such as those of stylobates, architraves, and cornices, which, if straight in reality, would have

appeared to the eye to sag or droop in the middle of their length, are formed with slightly convex outlines.

## Decoration

On the roof of the Parthenon the intersections of the marble roof-slabs above the cornice are masked by carved antefixae, and by large floral acroteria at the apex and lower angles (fig.2.7a&b.). Seen from the gable ends, the big acroteria upon the apex are set on the axis of the temple, the two lower ones being placed symmetrically on each side. From the long sides, the acroteria at the apex on each gable side look and are symmetrical. The ornaments on the temple are highly stylised in character.

The sculptures of the eastern and the western pediments narrate myths and legends. As is well-known, most elements of decoration in classical buildings were originally elements of the structure, or had both structural and decorative function. But the sculptures on the pediments of the Parthenon are purely for decoration.

All metopes in the Parthenon are 1.2 m. high. The main subjects represented on the metopes are the Greeks fighting Orientals, gods fighting giants, and Greeks fighting centaurs. The frieze of the Parthenon is one of the largest relief sculptures in the Greek world. It measures one metre high and 160 m. long and runs all the way round the exterior of the cella. The frieze is carved in higher relief at the top than at the bottom, showing that the sculptors consciously took into consideration the fact that it would be seen from below.<sup>47</sup> Its artistic style is naturalistic, and it represents a living picture of the whole Panathenaic procession of the middle of the fifth century BC.

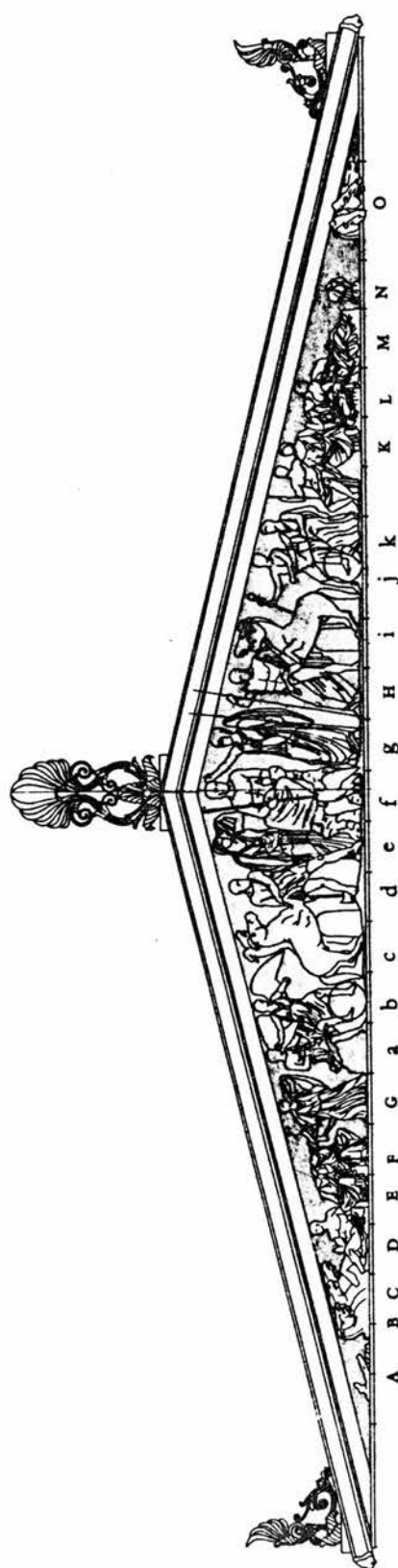
The Doric capitals in the Parthenon consist of an abacus square above an echinus circular in plan. At its lower end the echinus runs into the neck of the column shaft, which is cut from the same piece of stone (fig.2.6a). At the junction of the echinus and the neck

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<sup>47</sup> Lawrence, Alexander. W., *Greek Architecture*, (Penguin Books, Harmondsworth, 1967), 159.



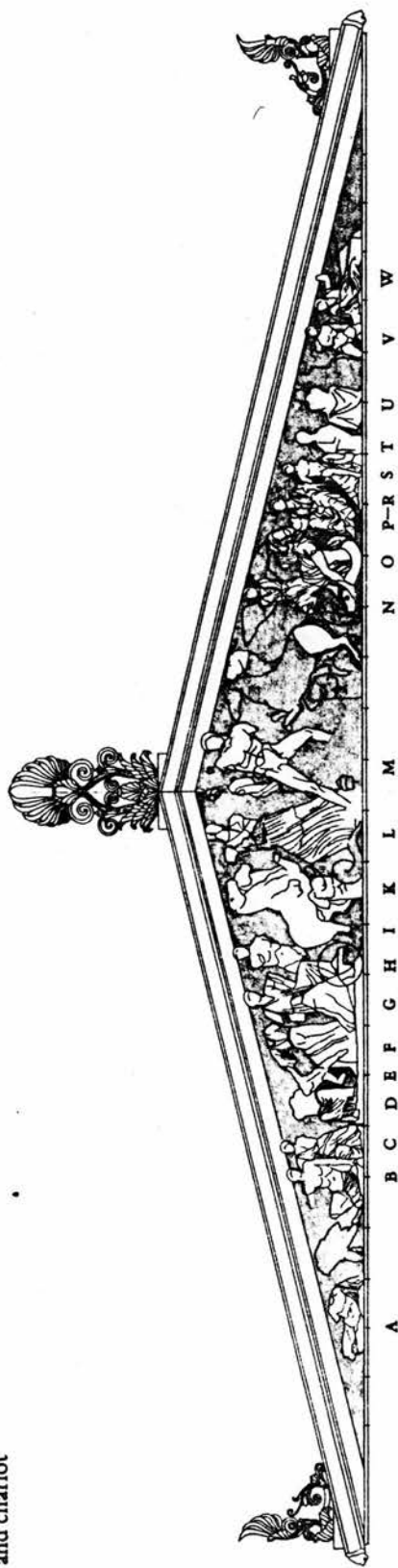




EAST

A-C - Helios (Sun) and chariot. D - Dionysos, E, F - Demeter and Kore. G - Artemis. a-c, i-k - conjectural chariot groups (Ares and Iris; Hermes and Amphitrite ?). d - Hephaistos. e - Hera. f - Zeus. g - Athena. H - Poseidon. K, L, M - Hestia, Dione, Aphrodite (?). N, O - Selene (Moon) or Nyx (Night) and chariot

(a)



WEST

A - hero 'Ilissos'. B-F - Kekrops, his daughters and son (?). G - Nike. H - Hermes. I, K - Triton (?) supporting horses. L - Athena. M - Poseidon. N - Iris. O - Amphitrite. P, Q, R - woman with two children, Oreithyia (?). S-W - other Attic royalty or heroes.

(b)

Figure 2.7. The pediments of the Parthenon (from Broadman, J., 1985).

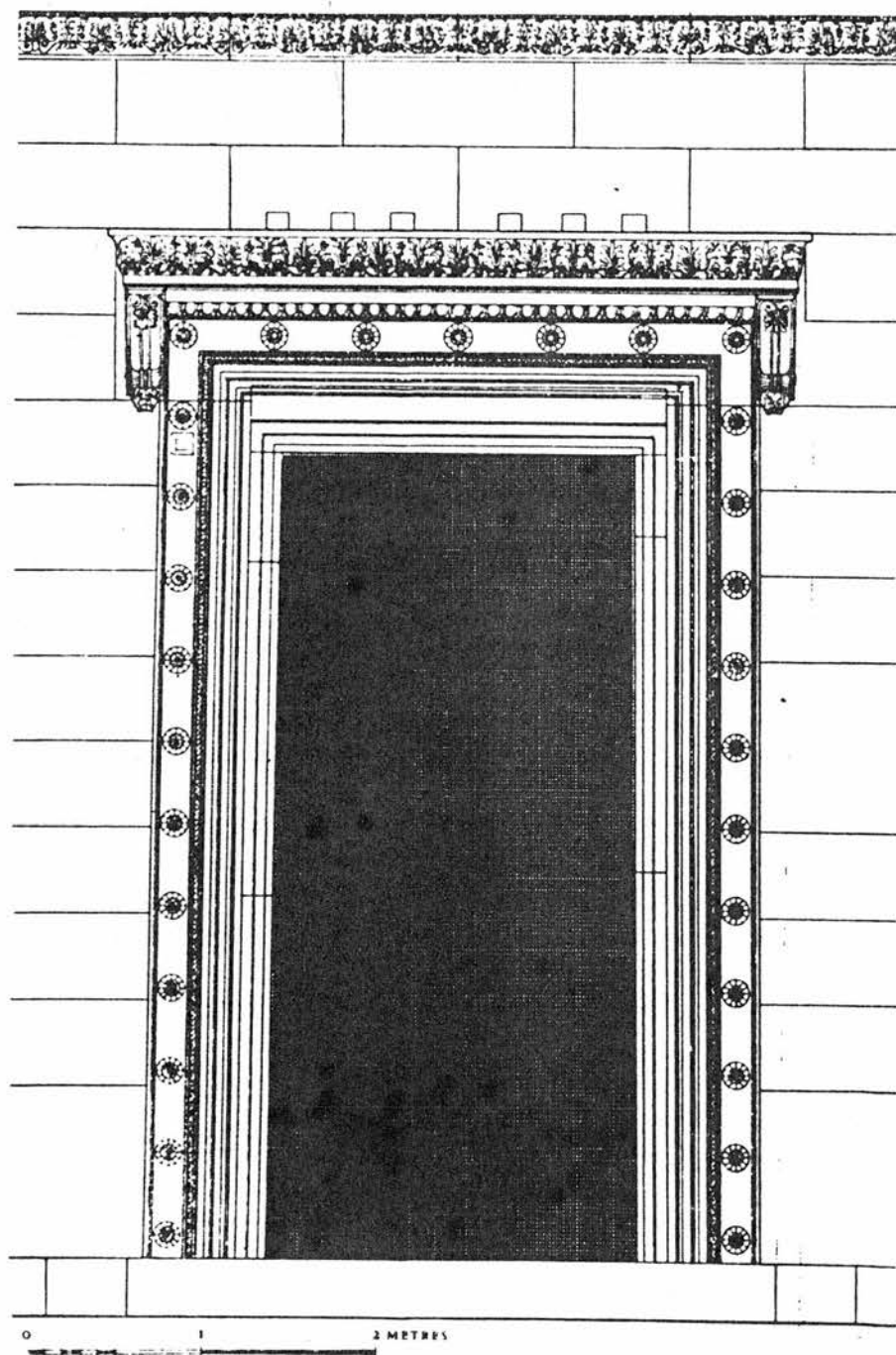


Figure 2.8. Restored design for doorway in north portico of the Erechtheion (from Lawrence, A., 1967).



there are some small, projecting rings, the annulets. The shaft is composed of superimposed drums, which are generally rounded by turning on a lathe. The marble drums are dowelled together by spikes of metal. The surface of the columns is fluted, with almost concave cuttings, which are shallow and meet to form sharp edges.

The walls in the Parthenon are composed of smooth rectangular blocks. There are no decorations on the surface of the walls, both inside and outside. There is a doorway in the wall on each gableside. It is perhaps impossible for us to know exactly about the decorations on the doors of the Parthenon. But, indirectly, we can probably get an idea from known comparable doors. For example, we know about the doorways of the Erechtheion (fig.2.8).

### **The cult statue**

The central figure in the eastern cella was the cult statue of Athena made of gold and ivory, and about 12.19 m. high, including the pedestal. The Athena Parthenos of gold and ivory is lost. However, texts, copies and finds at Olympia lead us to a close knowledge of her appearance and workmanship. Pausanias says that her helmet had a sphinx on it and griffins at each side of it; that there was an ivory Medusa head (on an aegis) on her breast, a Victory in her hand, a spear, a shield and a snake at her side; and that on the base there was a representation of the birth of Pandora (fig.2.9). There was a representation of an Amazonomachy on the outside, and of a gigantomachy on the inside. <sup>48</sup>

In short, situated at the high place of the city, the Parthenon is characterised by its high location, horizontal axis, centripetal theme, enclosed and ordered interior space, massive structure with symmetrical elevations, application of refinement, and delicate sculptures on pediment, frieze and metope. These are some of the most important characteristics of CWA.

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<sup>48</sup> Boardman, John, *The Parthenon and Its Sculptures*, (Thames and Hudson, London, 1985), p246.



Figure 2.9. Restored design for the interior of the eastern cella of the Parthenon  
(redrawing after the reconstruction of C. Praschniker).

## 2.2 The Taihe Dian

### 2.2.1 Historical background

The Taihe Dian was the main hall of the Forbidden City, which was the imperial palace of the *Ming* 明 and *Qing* 清 dynasties in Beijing. It was there, at the centre of politics and administration, that fourteen *Ming* and ten *Qing* emperors ruled China for 491 years. Beijing was the capital city of the Mongol *Yuan dynasty* 元朝 (1271-1368), called *Dadu* 大都, and was planned carefully according to the oldest Chinese way of planning a capital. The Forbidden City was built upon the former palace of the *Yuan* 元. The name Forbidden City has a symbolic meaning. In Chinese the three words, *Zi Jin Cheng* 紫禁城 (the Forbidden City) were used according to traditional Chinese beliefs. *Zi* 紫 refers to the *Ziwei Star* 紫微星, the Pole Star in which the supreme deity lived in the *Ziwei Palace* 紫微宮. Fixed in time and space, it was to be found at the apex of the vault of heaven, and the gods of all the other stars revolved around it in homage.<sup>49</sup> *Jin* 禁 in Chinese means 'forbidden' and *Cheng* 城 means a walled city. The palace was usually called *Gugung* 故宮 (the old palace) as well.

The Forbidden City, which was built during the reign of the third *Ming* emperor, *Zhu Di* 朱棣 (reigning from 1402 to 1422), is the only extant palace complex in China. In the long history of China, each dynasty built its palace complexes. Famous ones are the *Palace of A Fang* 阿房宮 of the *Qin dynasty* 秦朝 (221-206 BC), the *Weiyang Palace* 未央宮 of the *Han dynasty* 漢朝 (206BC-AD263), the *Daming Palace* 大明宮 of the *Tang dynasty* 唐朝 (618-907), the palaces of the *Song dynasty* 宋朝 (960-1279) in *Bianliang* 汴梁, and the *Yuan dynasty* 元朝 (1271-1368) in Beijing. However, only the Forbidden City has been preserved intact.

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<sup>49</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p18.

After the *Song dynasty* 宋朝 (960-1279), China was ruled by Mongols from the north. In the middle of the fourteenth century, the Mongol *Yuan dynasty* 元朝 (1271-1368) had become increasingly powerful in the north, and had expanded its territory towards the north-west. But subsequently it was overthrown by the Chinese rebel force from southern China led by *Zhu Yuanzhang* 朱元璋. *Zhu* 朱 and his band crossed the *Yangtze River* 揚子江 and seized *Nanjing* 南京 in 1356. Two years later, the Mongol capital, Beijing, was taken by his troops, and the *Ming dynasty* 明朝 (1363-1644) was founded (map.iii).

As did every founder of an empire in Chinese history, *Zhu Yuanzhang* 朱元璋 abolished the current political system, intending to strengthen the throne. Members of the royal family were sent to govern the richest and most strategic cities. Thus his fourth son *Zhu Di* 朱棣 was sent to Beijing as the governor. When *Zhu Yuanzhang* 朱元璋, the first Ming emperor, died in 1398, his grandson, a sixteen-year-old, succeeded to the throne. The uncle of the new emperor, the *Prince Yan* 燕王, commanded by now the strongest army in the Empire. He took *Nanjing* 南京 by force of arms after four years' conflict, and at the age of forty-three assumed the throne, with a reign title of *Yongle* 永樂 (Perpetual Happiness). In the fourth year of his reign (1406), *Zhu Di* 朱棣 issued a proclamation for the removal of the capital from *Nanjing* 南京 to Beijing.<sup>50</sup> In the following year (1407) the building of the Forbidden City in Beijing began, and, with more than 200,000 workers and artisans under his command, he took 14 years to complete the task.<sup>51</sup>

Beijing had already been considered as the capital of the *Yuan dynasty* 元朝 (1271-1368). From the time of *Zhu Di* 朱棣 it steadily developed as the centre and epitome of Chinese civilisation. During the reign of *Zhu Di* 朱棣, the assaults of Mongol tribesman were effectively repulsed. In the South the Emperor's armies advanced into the interior of Indo-

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<sup>50</sup> Cui, Ji, *A short history of Chinese Civilisation*, (Victor Gollanz Ltd, 1942), p176-185.

<sup>51</sup> 劉敦楨, 中國古代建築史, 中國建築工業出版社. Liu, Dunzhen, *Zhong guo gu dai jian zhu shi* (The Publishing House of the Chinese Building Industry, Beijing, 1987), p295.

China. The famous sea expeditions of his envoy *Cheng He* 鄭和 were spreading the glory of China throughout the Pacific Islands<sup>52</sup> (map iv).

The building of the Forbidden City started in 1407, but it was not until 1417 that construction of the palace began. It was completed in 1420. But the extant Taihe Dian was rebuilt in the *Qing* dynasty.. In 1421, only 100 days after its completion, fire broke out and the oldest Taihe Dian was reduced to ashes with two other great halls. Some ministers suggested returning to the old capital, *Nanjing* 南京. After the death of the emperor, *Zhu Di* 朱棣, his son *Hong Xi* 弘禧 decided to move the capital back to *Nanjing* 南京, and orders were issued for the renovation of the *Nanjing* 南京 palace. But after only one year on the throne, *Hong Xi* 弘禧, the emperor, died, and it was not until four years later, in 1439, that the decision was finally made by the new *Zheng Tong* 正統 emperor to reconstruct the Taihe Dian in Beijing.<sup>53</sup> In 1557, one hundred and twenty years after the reconstruction, the Taihe Dian with the buildings around was burnt down again. In 1597 the Taihe Dian and two other main halls nearby were destroyed by fire once more, and reconstruction was not completed until 1627. Ten years later fire broke out again. After nineteen years, the extant one was built.

The original one was carefully copied at each of the rebuildings. The size of the structure, the form of the roof and the colours of each element of the building remain unchanged from those of the first one. Records tell how the eunuch *Ruan An* 阮安, in charge of the building of the second one carefully made a replica of the first Taihe Dian. Comparing the plan of the extant Taihe Dian with those of the former ones, we can see that some little changes were made during the latest reconstruction, such as the treating of the galleries on the two gable-sides as verandahs. The bracket sets of the extant Taihe Dian are finer than those of the original one.<sup>54</sup>

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<sup>52</sup> Cui, Ji, *A Short History of Chinese Civilisation*, (Victor Gollanz, London, 1942), p176-185.

<sup>53</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p23.

<sup>54</sup> 單士元, *故宮札記*. 紫禁城出勝社. Shan, Shiyuan, *Gu gong zha ji*, (The Publishing House of the Forbidden City, Beijing, 1990), pp228-236.

In 1911, when the republican government overthrew the *Qing* 清, the Taihe Dian ended its role as the political centre of China. The last emperor, *Fu Yi* 溥儀, was forced to leave the Forbidden City in 1925. It was also in 1925 that the former palace became a national museum. It has remained one ever since.

Originally, the Taihe Dian was called the *Fengtia Dian* 奉天殿 (the Hall of Serving Heaven), but was renamed the *Huanji Dian* 皇極殿 (the Hall of Imperial Supremacy) during the middle of the *Ming dynasty* 明朝 (1363-1644). It was renamed the Taihe *Dian* 太極殿 (the Hall of Supreme Harmony) after it was restored in 1645.<sup>55</sup> It was not only the largest hall in the Forbidden City, but also the largest timber-framed structure in China.

It is believed that the expert planner of the palace was Marquis *Chen Gui* 陳珪, assisted by *Xue Lu* 薛祿, *Liu Shen* 柳升, *Wang Tong* 王通, and the eunuch *Ruan An* 阮安.<sup>56</sup> For building the Forbidden City, master planners and craftsmen were drafted from the southern Chinese provinces. For example, there was the famous master-mason, *Yang Qing* 揚青, and his father who used to serve the former emperors in *Nanjing* 南京; and the master-carpenter, *Kuai Xiang* 蒯祥, from *Suzhou* 蘇州 whose father had also worked on the building of the palaces in *Nanjing* 南京.<sup>57</sup> These planners and craftsmen who came from south China brought new techniques and styles of CCA to Beijing. During the *Ming dynasty* 明朝 (1363-1644), some building materials, such as glass tiles, bricks and metal, became cheaper, and could be used in the palaces because of the development of the manufacturing industry.

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<sup>55</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p23.

<sup>56</sup> 單士元, 故宮札記, 紫禁城出勝社. Shan, Shiyuan, *Gu gong zha ji*, (The Publishing House of the Forbidden City, Beijing, 1990), pp218-220.

<sup>57</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p23.



### 2.2.2 Cultural context

The *Ming dynasty* 明朝 (1363-1644) was one of the great eras of social stability in Chinese history, and the people lived for 276 years in comparative peace. In fact stability was a common feature of Chinese society from the *Han* 漢 to the *Qing* 清. In any case, so stable was the political and social order of the *Ming* 明 that it lasted, basically unaltered, under the alien *Qing* 清 from 1644 till 1912. Thus, from the middle of the fourteenth century till the beginning of the twentieth China followed traditional ways.<sup>58</sup> This was partly due to the teachings of Confucianism, in particular during the *Ming* 明 and *Qing* 清 dynasties, and the Chinese view of history as 'change within tradition'. "The leaders of society were devoted to tradition; and anything that happened in the present had to be fitted into the rich pattern of experience inherited from the past."<sup>59</sup> This approach was cultivated from the *Han dynasty* 漢朝 (206BC-AD263) till the *Qing dynasty* 清朝 (1644-1911). The Taihe Dian, with the Forbidden City, played an important role as a religious and political centre in China in the *Ming dynasty* 明朝 (1363-1644) and the *Qing dynasty* 清朝 (1644-1911).

There were three major religions active in China during the *Ming dynasty* 明朝 (1363-1644) and the *Qing dynasty* 清朝 (1644-1911): Confucianism, Daoism and Buddhism. Confucianism and Daoism are both firmly rooted in China. Buddhism was introduced into China from India during the *Eastern Han* 東漢 (25-263).

Confucius 孔子 (552-479 BC) was the founder of Confucianism. Confucianism, together with ancestor-worship, was adopted as an official religion during the *Ming dynasty* 明朝 (1363-1644) and the *Qing dynasty* 清朝 (1644-1911). Confucian temples were built all over the country. However, Confucianism can be thought of as a system of ethics rather than as a religion. The fundamental ideas of Confucianism consist of a moral code, centred on the Will of Heaven, harmony with nature, *Li* 禮 (rituals) and *De* 德 (virtues). In the

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<sup>58</sup> Fairbank, John, K., *China*, (George Allen & Unwin, London, 1984), p177.

<sup>59</sup> *Ibid*, p178.



practice of CCA, this influence can be seen in the *Zhou Ritual* 周禮 and in building principles; for instance, in the use of imposing buildings expressing the dignity inherent in the concept of the state.<sup>60</sup> Confucians believed that following the Will of Heaven and maintaining harmony with nature was the way towards peace and happiness. Human activity was to be subject to Confucius's moral ideas governing daily life, art and architecture.

Laozi 老子(500 BC) was regarded as the founder of Daoism. The *Yi Jing* 易經 (Book of Changes) and the *Dao De Jing* 道德經 are the two classics of Daoism. Within CCA, Daoist influence can be found mainly in the theories of *yin* 陰 and *yang* 陽 and the Five elements. "*Yin* 陰 and *yang* 陽 is the way of heaven and earth."<sup>61</sup> According to this theory, everything in the earth can be divided into the two mutually opposing and independent elements of *yin* 陰 and *yang* 陽. In addition to the principles of *yin* 陰 and *yang* 陽, another important theory of Daoism is that of the Five elements, *wu xing* 五行 - water, fire, wood, metal and earth; and these elements in combination. The theories of *yin yang* 陰陽 and of the Five elements are an important part of traditional Chinese cosmology.<sup>62</sup> The ancient Chinese believed that everything in the world comes from these five basic elements, which, in combination, affect each other, as well as causing all other things to occur. For example, wood helps to make fire, and fire helps to make metal. This is called *wu xing xiang sheng* 五行相生. But water quenches fire and fire melts metal, which is called *wu xing xian ke* 五行相克. In the wrong combination they are mutually destructive. So harmony of the five elements, or lack of it, can cause great happiness or distress to a human's life, or to a country's life. 'Harmony' is the highest level of achievement in human life, as well as in architecture.

The Taihe Dian was set up as the most important building in the Forbidden City. Since the time of the Zhou dynasty, the Chinese emperors have been called Son of Heaven, and

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<sup>60</sup> Liu, Laurence. G., *Chinese Architecture*, (Academy Editions, London, 1989), p19.

<sup>61</sup> *Huang Di Nei Jing* 皇帝內經.

<sup>62</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p26.

regarded as men who accept messages from heaven and establish order on earth. The emperor was the leader in both religion and politics, and the head of the country. His palace thus became the centre of the nation's religious and political life. The man who held the most important rituals and ceremonies was the emperor. The ceremonies were to do with the birthday of the emperor, the Chinese New year, the crowning of the new emperor, and the proclamation of the edicts of the emperor. The building thus became a symbol of its dedicatee, the emperor.

The Taihe Dian was of the highest class of building in the Forbidden City. Along with the front courtyard, it was used only for a few of the most important ceremonies and celebrations, such as the celebration held by the emperor on China's New Year's Day. In China, the New Year was traditionally the most important national festival. The royal celebration of the Chinese New Year was held in the Taihe Dian and in its front courtyard. According to the *Ming's* rule, before dawn on New Year's Day the imperial guards, the court music-masters, the directors of protocol, and the imperial astronomers, together with the masters of ceremony and the summoning officers, assumed their various positions in the front courtyard of the Taihe Dian. At the first beat of the drum, about three-quarters of an hour before dawn, all the civil and military officials assembled in position before the Meridian Gate; when the drum was struck for the second time, officials from the Ministry of Rites led the procession into the eastern and western parts of the front courtyard of the Taihe Dian; and when the drum was struck for the third time, the emperor appeared in the grand hall:

The emperor, wearing ceremonial vestments, would leave his palace in a sedan chair at the first drum beat, and assume the imperial chair in the hall of Complete Harmony at the second. When the drum was struck for the third time, the emperor ascended the throne in the Hall of Supreme Harmony to the accompaniment of ceremonial music. As the music stopped, the emperor cracked his whip three times, while all the officials remained standing upright in formations by the appropriate rank markers. Music followed, and all kow-towed to the emperor four times. Next, all the officials tucked their *fu* 符, official tablets, into their girdles, bowed, knelt down, and shouted 'long live the emperor' three times. All stood up again, music was played,

and the officials prostrated themselves four times, whereupon the emperor returned to the Hall of Complete Harmony.<sup>63</sup>

Most of the important banquets to mark the Chinese New Year, the emperor's birthday celebration, and the various festivities, were held in the Taihe Dian and its front courtyard during the *Ming* dynasty 明朝 (1363-1644) and the *Qing* dynasty 清朝 (1644-1911). According to the records, officers of the highest-rank, generals and members of the royal family were allowed to eat upon the marble terrace during the feasts, but everyone else ate in the courtyard. Over ten thousand high officers attended the important feasts, and nearly 4,000 chefs were employed.<sup>64</sup>

Those important celebrations, rituals and ceremonies held by the emperor in the Taihe Dian were both religious and political functions. The emperor himself played a key role in these actions which were believed to be capable of establishing harmony between Heaven and Earth. The space, form and decoration of the Taihe Dian were created as a setting for these important rituals and ceremonies.

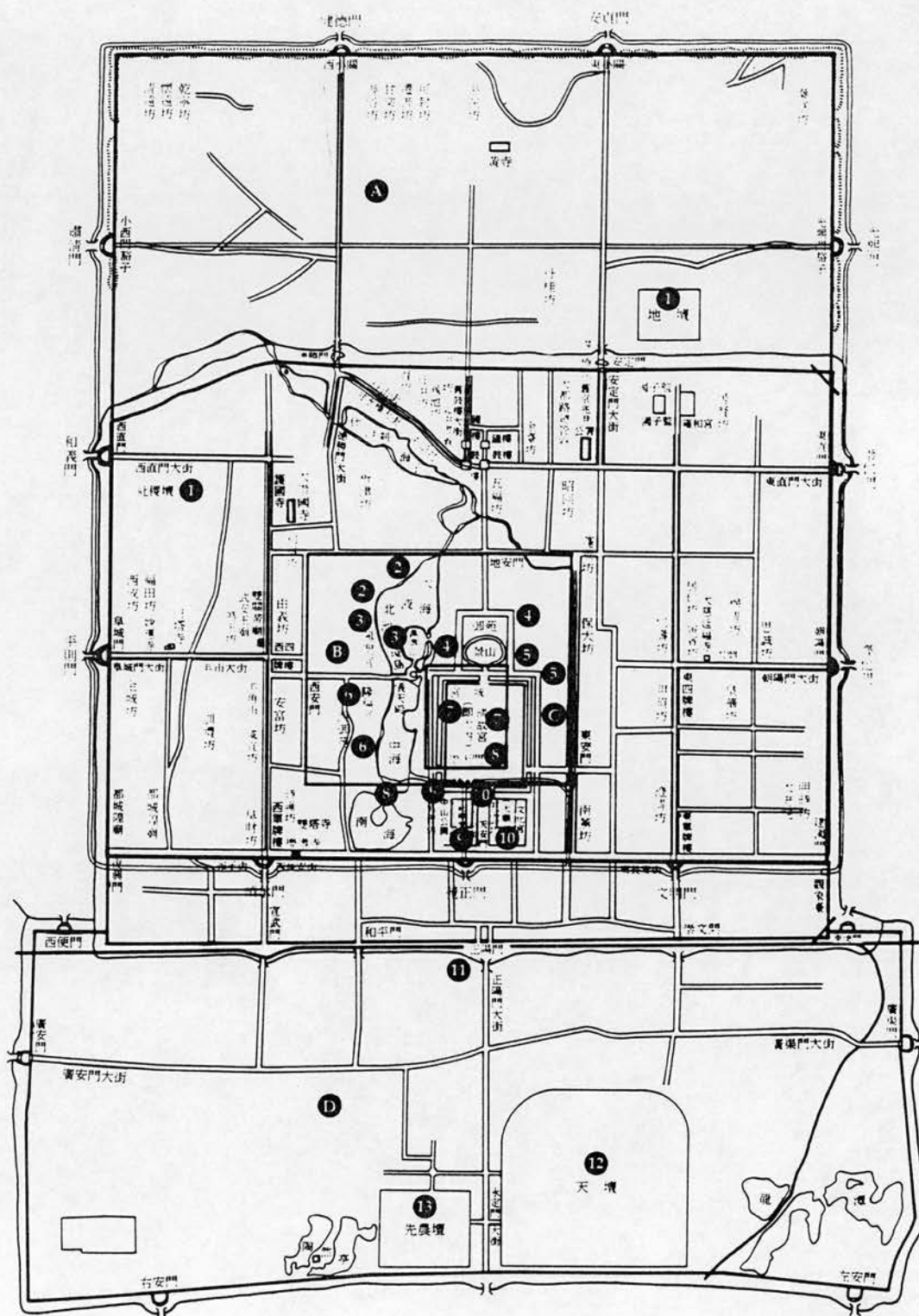
### 2.2.3 Architectural treatment

The Taihe Dian is located in the centre of the royal palaces of the Forbidden City, in the centre of Beijing (fig.2.10). Built to a rectangular plan, the palace city measures 961 m. from north to south, and 753 m. from east to west. A continuous wall, with ramparts, 7.9 m. high, and 8.62 m. wide at the base, is surrounded by a wide moat. Watchtowers are placed at each corner of the rectangular site (fig.2.11). There is a total of four gateways: *Wu Men* 午門 (the Meridian Gate) to the south, *Shenwu Men* 神武門 (the Gate of Martial Spirit) to the north, *Donghua Men* 東華門 (the East Glorious Gate) and *Xihua Men* 西華門 (the West

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<sup>63</sup> Ibid, p59.

<sup>64</sup> 單士元, 故宮札記, 紫禁城出勝社. Shan, Shiyuan, *Gu gong zha ji*, (The Publishing House of the Forbidden City, Beijing, 1990), p234.



- |                         |                            |
|-------------------------|----------------------------|
| 1 Altar of Heaven       | 8 South Lake               |
| 2 North Lake            | 9 Altar of Land and Grain  |
| 3 Jasper Island         | 10 Great Imperial Ancestr. |
| 4 Prospect or Coal Hill | 11 Gate of Positive Yang   |
| 5 Forbidden City wall   | 12 Temple of Heaven        |
| 6 Middle Lake           | 13 Altar of Agriculture    |
| 7 Forbidden City        |                            |

Figure 2.10. Plan of the *Ming* Beijing (from Yu, Z.Y., 1984).



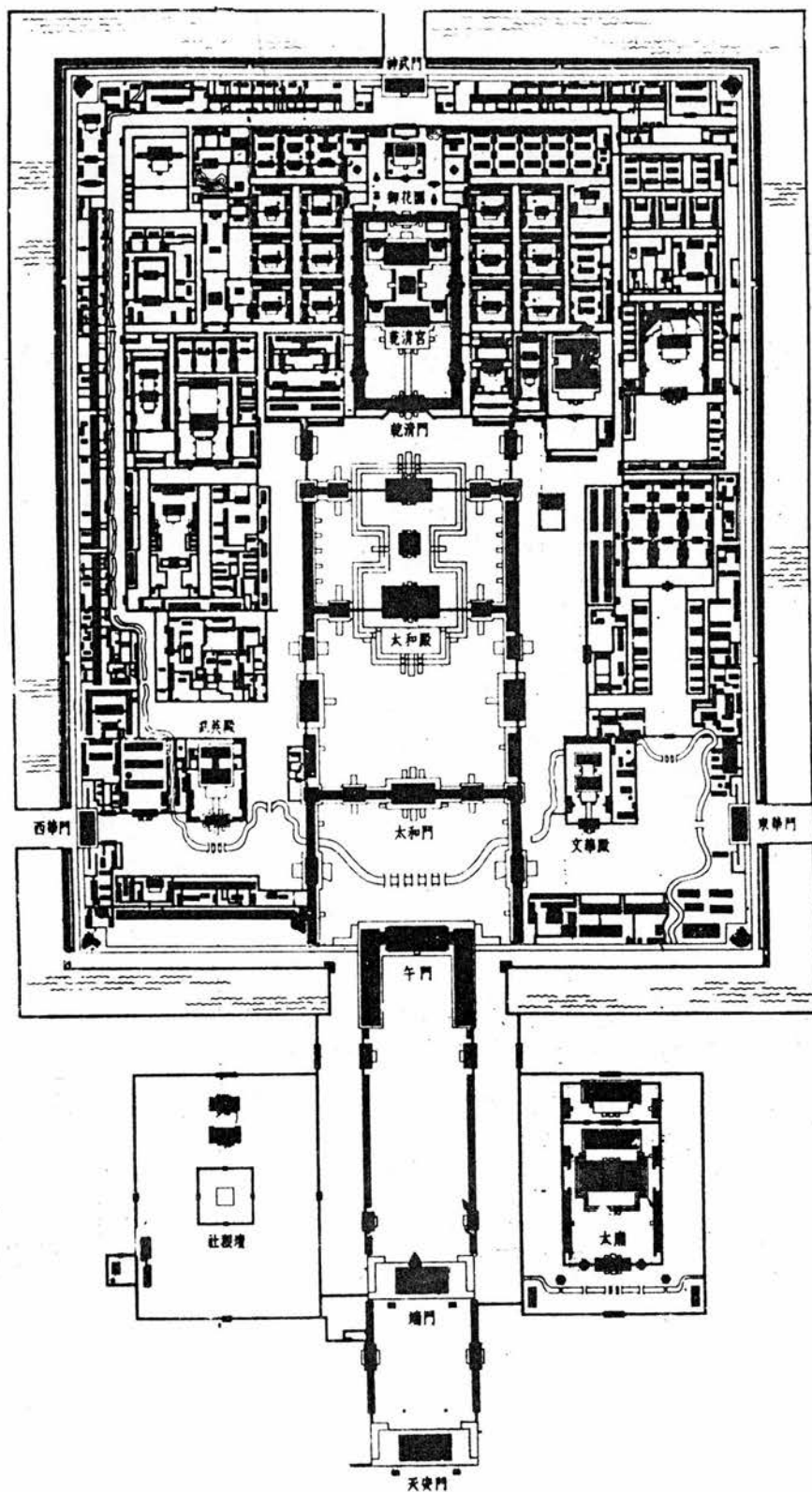


Figure 2.11. Plan of the Forbidden City (from Liu, D.Z., 1980).

Glorious Gate). Inside, the Forbidden City is divided into an Outer and an Inner Court, and all is entirely enclosed by thick, rusty-red-coloured brick walls. The Outer Court was the place of administration, and is at the front, in the southern half of the Forbidden City. The Taihe Dian is the central focus of the Outer Court. The Inner Court, the other half of the Forbidden City, was the residential area of the emperor and his family. The Outer Court boasts a group of grand buildings set in large open spaces, while the Inner Court is composed of gardens and the palace compounds.

The Taihe Dian is not only located at the centre of the Forbidden City (fig.2.11), it is also located on the central axis of the palace. From the Meridian Gate to the Gate of Martial Spirit, a north-south axis runs through the palace. On the axis, the *Taihe Dian* 太極殿, the *Zhonghe Dian* 中和殿 (the Hall of Complete Harmony) and the *Baohe Dian* 保和殿 (the Hall of Perpetual Harmony), treated collectively as the Three Great Halls, mark its most important point. They occupy the central space of the palace, covering an expanse of 85,000 sq.m. They are the most outstanding palace group in the City, being monumental, heroic and grand in scale, rich in ornamentation, and delicate in their attention to detail. There are also three main halls in the Inner Court, the *Qianqing Gang* 乾清宮 (the Palace of Heavenly Purity), the *Jiaotai Dian* 交泰殿 (the Hall of Union) and the *Kunning Gong* 坤寧宮 (the Palace of Eternal Tranquillity). They seem to echo the Three Great Halls of the Outer Court. Behind the Three Inner Halls is the Imperial Garden. To complete the symmetrical composition, there are eight big courtyards and eleven large buildings between the *Wu Men* 午門 and the *Shenwu Men* 神武門, all on the same axis.

## Space

Figure 2.12 shows the plan of the Taihe Dian. It is eleven bays (including the side verandahs) long, and five bays wide. There are two doorways, one north and one south. The northern one occupies the three central bays. The main entrance is on the south front,

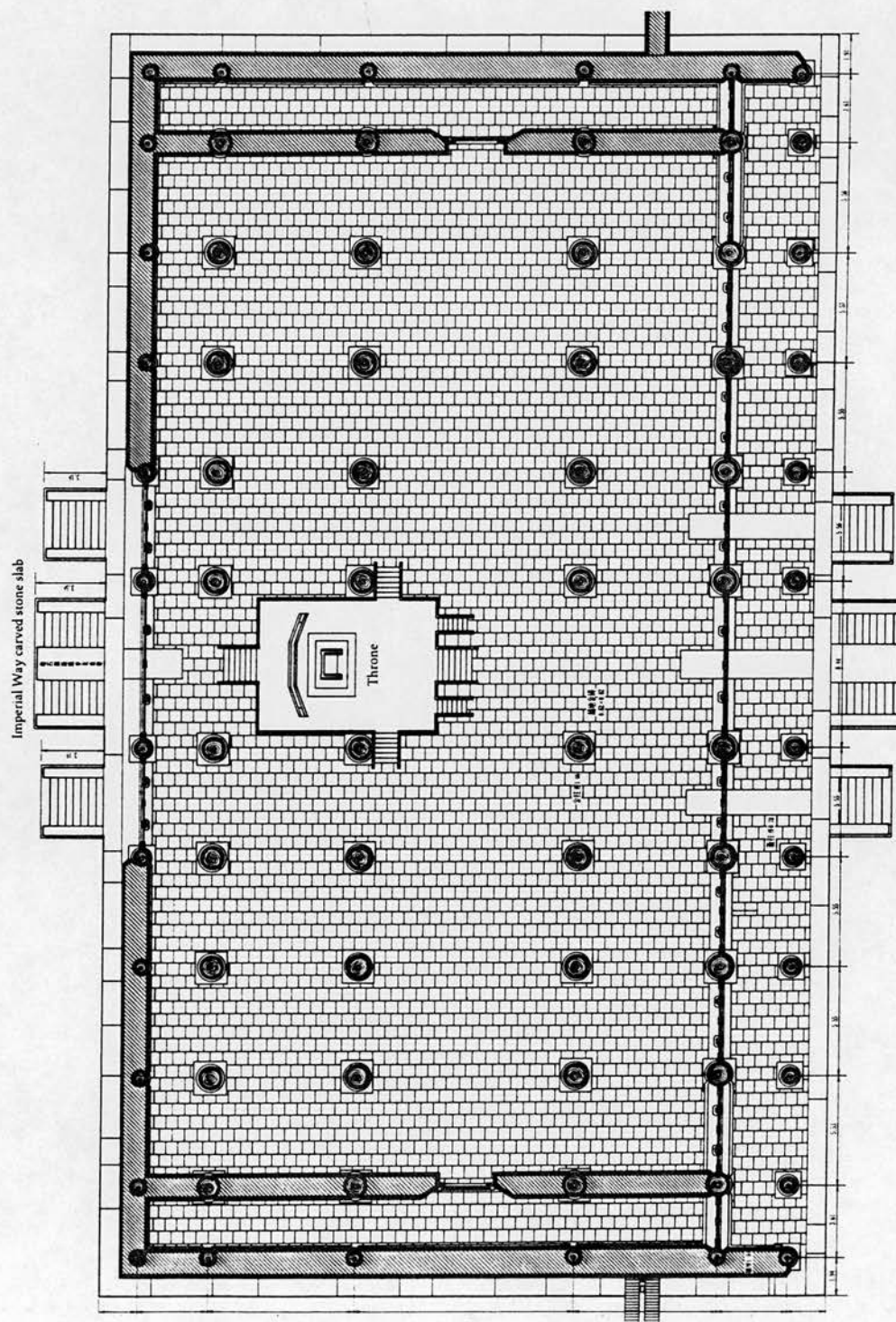


Figure 2.12. Plan of the Taihe Dian (from Yu, Z.Y., 1984).



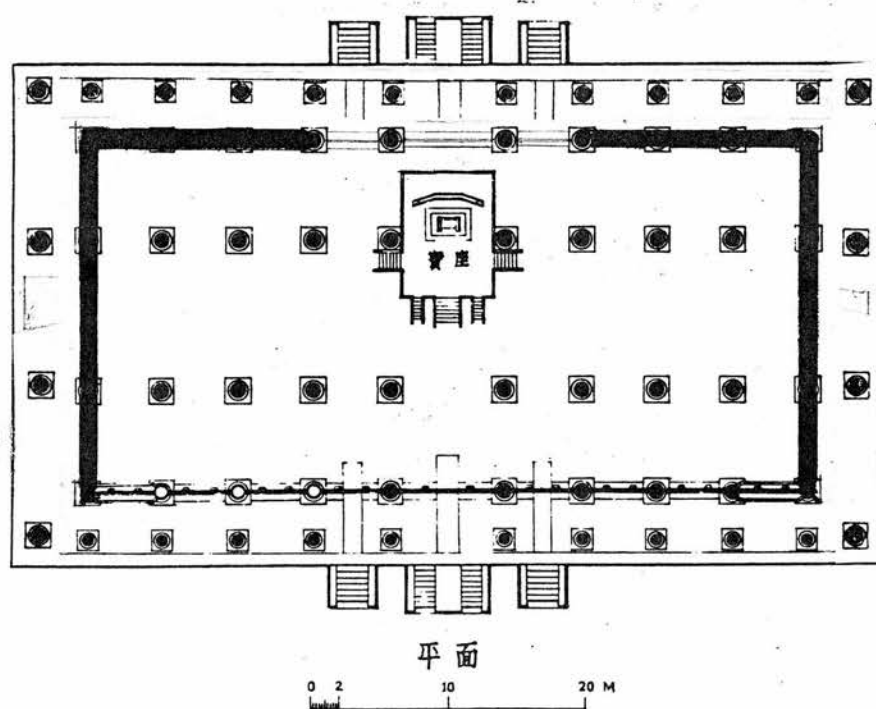
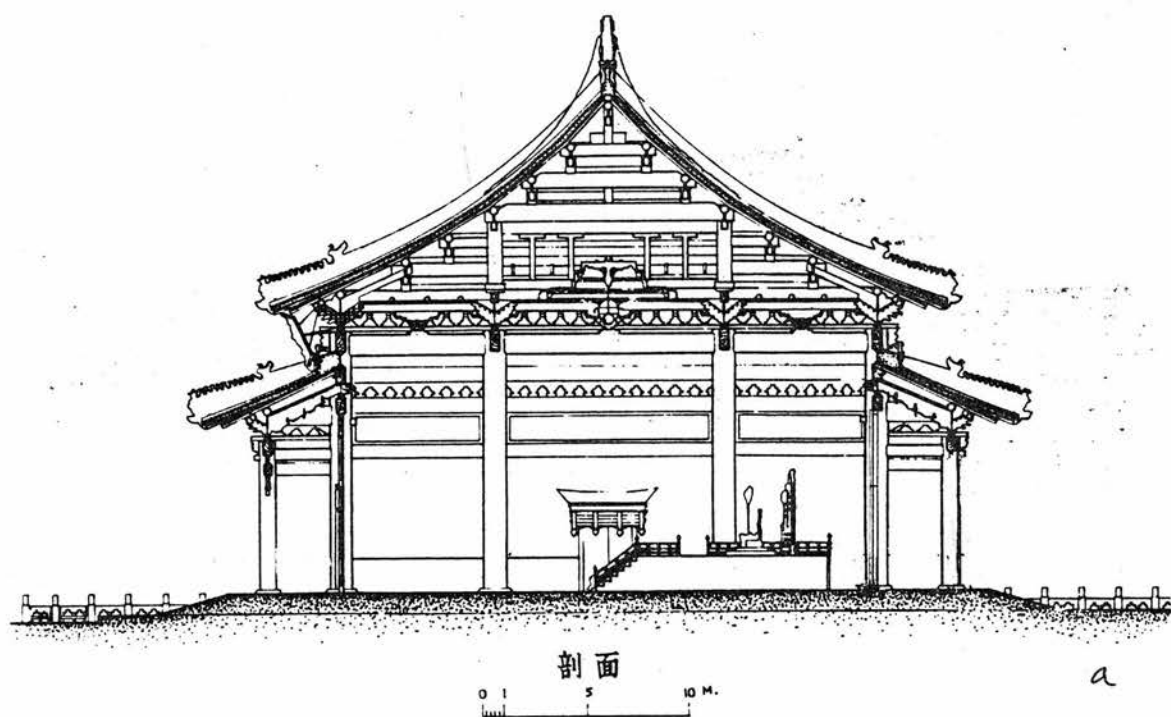


Figure 2.13. The original plan (a) and section (b) of the Taihe Dian of the *Ming* dynasty.

and occupies seven bays. The central bay is wider than the others, measuring 8.44 m. from axis to axis of the columns, and is called the *danxin jian* 當心間 (central bay). The two terminal bays are called the *shao jing* 稍間 (terminal bay), and measure 3.61 m. from the axis of the two columns. The bays between the central and the terminal ones are called the *ming jing* 明間 (the bay of delight), and measure between 5.57 and 5.53 m. There is a colonnade on the south side, and the twelve front columns span 3.62 m. from the doorways to the colonnade.

The original plan of the Taihe Dian in the *Ming dynasty* 明朝 (1363-1644) was slightly different in the arrangement of the walls. Figure 2.13 shows the section and the plan of the Taihe Dian of the *Ming* 明. The open galleries encircle the interior space on four sides (as in the Parthenon), and there was a lower gallery on each of the two gable ends to link them with the galleries of the front courtyard. This plan was not changed until the extant Taihe Dian was built in 1645.

The interior of the extant Taihe Dian is an enclosed and rectangular space. It is surrounded by thick brick walls on three sides, is nine bays long and five bays wide, and measures 52.86 m. by 33.33 m. from the axis of each corner column (fig.2.12). A gilt throne on a wooden carved platform, 1.8 m. high, is placed near the northern end of the central bay. Behind the throne the doorways on the north side open towards the *Zhonghe Dian* 中祿殿. At the front, there are four windows, with seven doorways occupying all eleven bays. Between the front doorways and the front colonnade is an open gallery. In the original plan of the *Ming* 明 (1363 - 1644) galleries were placed on the other sides as well.

## Form

In the Taihe Dian the gilt throne and its platform dominate the whole interior. Twenty-four huge columns rise directly from the ground and support the ceiling (fig.2.14). There is a big caisson in the middle of the ceiling, directly above the front of the imperial throne. It is

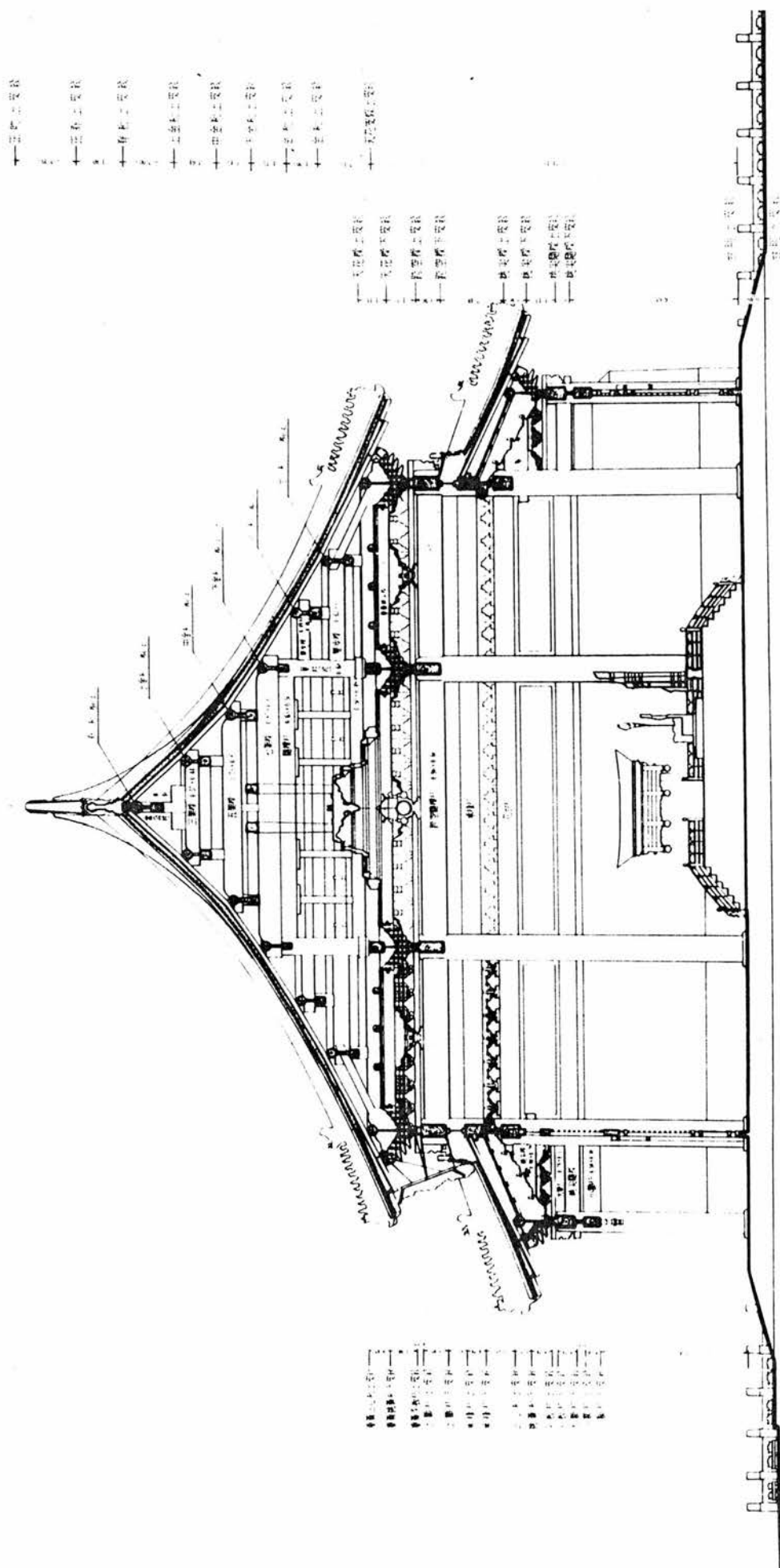
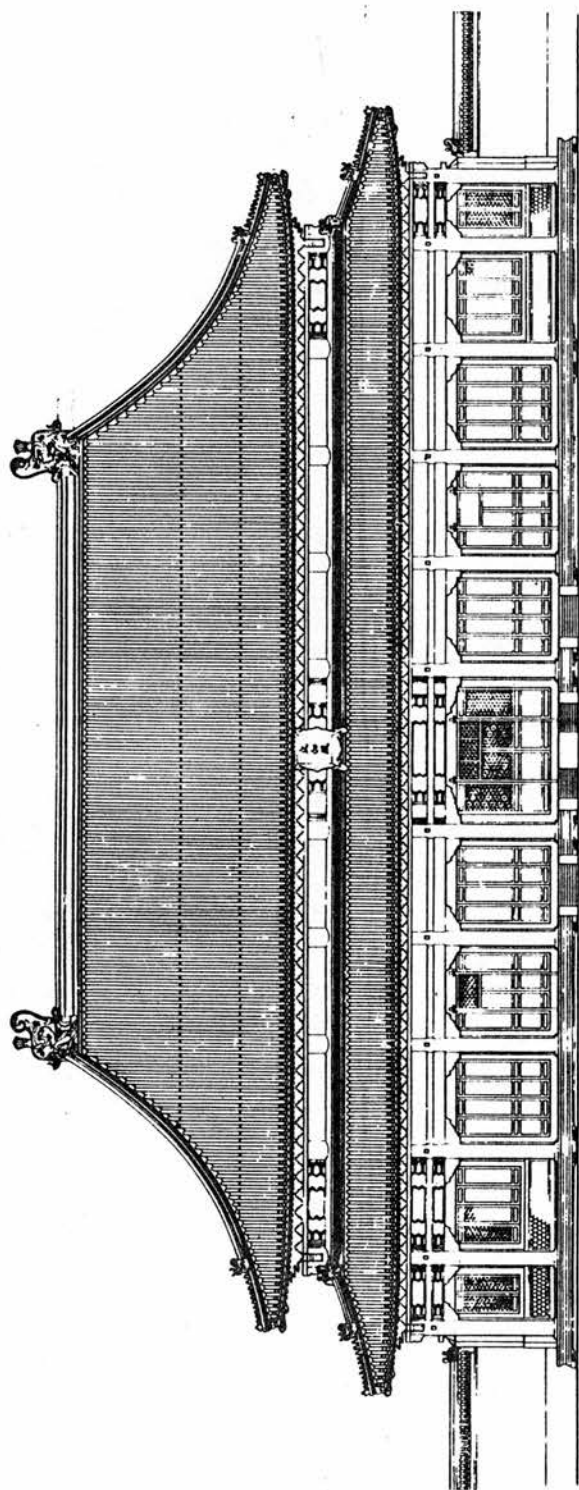


Figure 2.14. Section of the Taihe Dian (from Yu, Z.Y., 1984).



0 5 10 M.

Figure 2.15. The front elevation of the Taihe Dian (from Liu, D.Z., 1980).

subdivided into an upper, middle and lower section. The lower basal part is about 6 m. square, the middle part is octagonal, and the upper part is circular. Between the middle part and the upper part there are two square frames. The depth of the three layers is 1.8 m. A group of bracket-sets carries each level upwards and inwards. The dome at the top is 0.72 m. high and 3.2 m. in diameter. It is supported by a circle of twenty-eight small bracket-sets. Surrounding the huge gilt caisson are the coffered ceilings, which are formed by parallel wooden laths intersecting at right angles. Massive walls enclose the hall on three sides. Between the walls and the ceilings are some big beams and bracket-sets finely decorated.

The exterior form of the Taihe Dian is of a simple cuboid mass with a double-eaved hip roof. It consists of the front, the rear and the two flanks. The treatment of the two flanks is identical. There is a colonnade only at the front. Figure 2.15 shows the front elevation of the Taihe Dian. As with those of the Parthenon, the elevations are subdivided horizontally into three parts: the double-eaved hip roofs, colonnade and wall, and platform and terrace.

The roof of the Taihe Dian is called the *chong yan wu dian roof* 重檐廡殿頂 (double-eaved hip roof), the highest rank of the *Wudian* 廡殿 roof, and is covered with yellow-glazed tiles. Such roofs are employed only in the highest rank of buildings, such as the Taihe Dian, and other buildings in the palace. The huge double-eaved roof weighs more than 2,000 tons, and the distance from the horizontal ridge to the ground is 35.05 m.<sup>65</sup> The roof occupies two-thirds of the elevation. The main top ridge is 1.8 m. high, and is decorated with a pair of huge gaping dragons.

There are two types of glazed tiles, 'flat' and 'cylindrical'. The former are slightly curved and wider than the latter. They are laid overlapping one another vertically down the roof slope to form rows. Each cylindrical tile end has a dragon design. Between the terminal cylindrical tiles are gutters of a crescent-moon shape.

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<sup>65</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p229.

The large hip roof is characterized by an inward curve and upturned corners. Beams of the wooden structure are placed between the columns, resting on their tops and fitted together with tenons and mortises. By stacking tiers of these frames one on top of the other, a rising line of steps is produced; and when the points of the step are joined together, the pitch and silhouette of the roof is formed.<sup>66</sup> Looking at the section of the Taihe Dian, we see that the lean-to roof below the eaves of the hipped roof rests on the second row of colonnades. A row of bracket sets determines the pitch. The pitch of each section of the rafter is increased from the eaves up towards the ridge, five beams carrying eight pitches on each sloping roof. This treatment forms an elegant curved sloping line on each sloping ridge and on the corner eaves.

In the Taihe Dian, columns rise directly from the platform, and, crossing with beams and bracket-sets, support the big over-hanging eaves. There is a low base under each column called *zhujing* 柱鏡 (mirror base). Behind the front colonnade the partition doors occupy seven bays, and silled windows occupy the remaining four bays. Both the partition doors and the silled windows are painted in vermilion, with the red columns and the red walls set strikingly under the yellow-glazed roof and on the white marble terrace; and the whole is set off by the blue sky. The bright and colourful components are the salient characteristic of the Taihe Dian.

Each of the front columns measures 0.78 m. in diameter and 5.83 m. in height (under the beams). The brick walls are 1.4 m. thick at the base. Inside the hall, there are two other walls on the axes of each of the second terminal columns, which form the two verandahs, all seventy-two columns arranged with monotonous regularity. Inside the hall, there are 24 big columns supporting the ceilings, and they measure 1.06 m. in diameter at the base and 14.4 m. in height. The columns and walls incline slightly inwards, and the eaves and sloping ridges curve gently.

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<sup>66</sup> Ibid.



The central bay is built up with eight bracket-sets and is clearly wider than the others. They consist of four tiers supporting the lower eaves, while those used for the upper eaves are piled in five layers. The bracket-sets and beams are painted in blue and green polychrome decoration. The same treatment is used with the beams and bracket sets of the interior. From the central bay to the two terminal bays the space between the columns is reduced gradually. The thick walls are inclined slightly towards the interior. The junction between the thick walls and the beams is on an inclined plane. Up on the walls and colonnades are some large and small tie beams and bracket-sets painted in polychrome decoration. The junctions of the lowest beams and the front columns have a *queti* 雀替, of carved and gilt roll-flower patterns. Between the eaves of the hipped roofs and the lean-to roofs is a row of beams and bracket-sets (fig.2.16), just as there is between the eaves of the lean-to roofs and the colonnade.

The marble platform of the Taihe Dian is 0.98 m. high, and raises the hall from the top of the marble terrace (fig.2.17a). It is made of carved square black bricks and white marble slabs. There are three stone stairs in front of the three central doorways, and they lead to the terrace. The Three Grand Halls, the *Taihe Dian* 太極殿, the *Zhonghe Dian* 中極殿 and the *Baohe Dian* 保極殿 stand on a three-tiered marble terrace, which measures approximately 2,377 sq.m., and is 8.13 m. high. White marble balustrades have been attached to the edges of the terrace. This treatment is reserved for buildings of the highest rank. From the front corners of the first level of the three-tiered terrace, each succeeding terrace retreats towards the hall gradually. The outline of the hall, seen from the Gate-house of Supreme Harmony, is quite pyramidal in shape.

The exterior form is mainly characterized by the massive glazed roof, which occupies more than two-thirds of the elevation and glistens like gold in the bright sunshine against the blue sky. In both buildings, the colonnades are set-off by the shadows in the galleries. The areas between the colonnades and eaves, the capitals and entablature of the

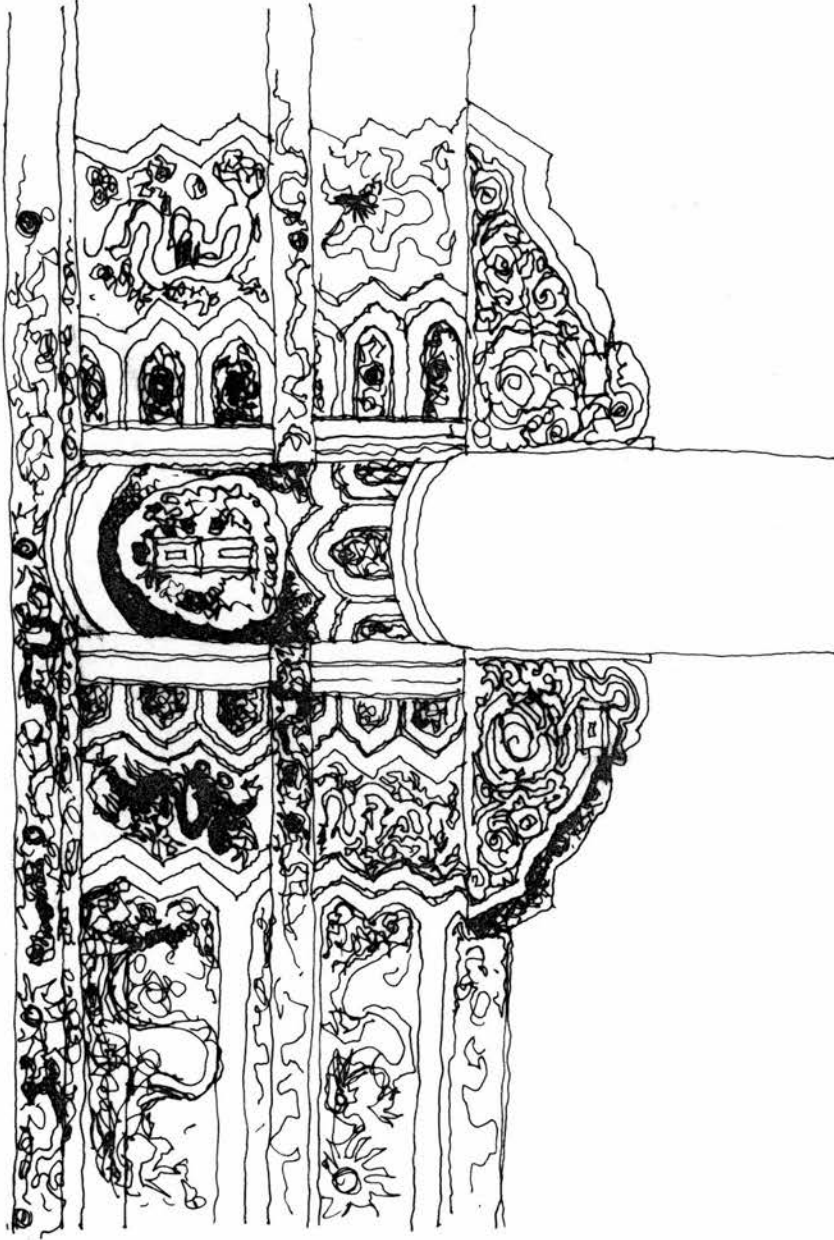
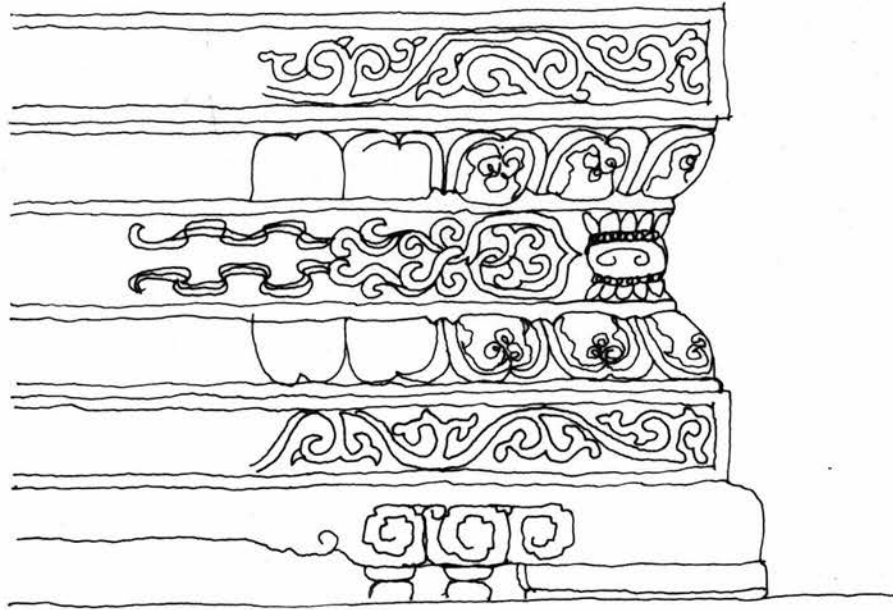


Figure 2.16. The *hexi* 絳色 polychrome painted decoration on the column-head and beams of the Taihe Dian.



*△ Marble platform of the Taihe Dian* a

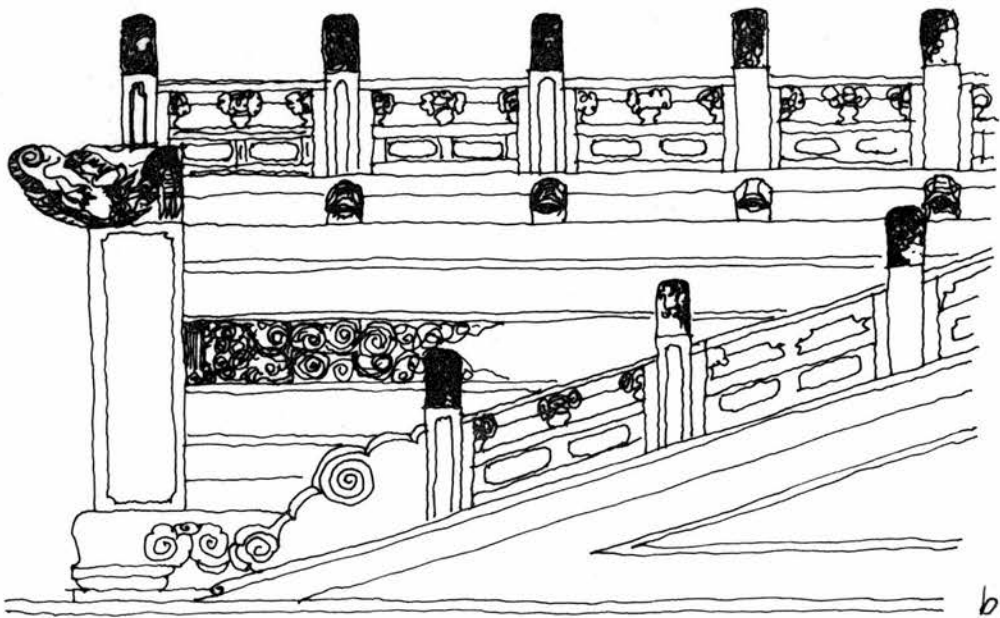


Figure 2.17. The elevation of the marble platform (a) and balustrades (b) of the marble terrace of the Taihe Dian.

Parthenon, and the beams and bracket sets in the Taihe Dian are emphasised by ornaments and polychrome paintings.

## Decoration

The central decoration inside the Taihe Dian is the caisson above the throne (fig.2.18). The sunken square drum in the centre is the intermediate portion which supports the upper portion. A number of crossed beams divide the section into several triangles and rhombuses containing carved dragons. The dome, supported by a circle of small bracket-sets, is decorated with a writhing dragon holding a pearl in its mouth. The coffered ceilings surrounding the caisson are formed by parallel wooden laths intersecting at right angles. Their sunken panels are painted in green and blue patterns with gilt dragons, while triangular cloud patterns fill the four corners. At the point of intersection of the wooden laths is a painted cruciform design with 'swallow-tail' ends, made up of a 'lotus seed-pod wheel' which conceals the pin at the centre, and lopped motifs. Between the gilt caisson and the coffered ceiling there is a group of Greek patterns (echinus), and these are also used on the platforms. The columns are mainly painted in red. All the beams resting on the top of the columns are painted in *hexi* 蘇璽 polychrome decoration.

According to the principles of the *Ming* 明 (1363-1644), *hexi* 蘇璽 polychrome painted decoration is the highest class of painted decoration (fig. 2.16). In the case of the Taihe Dian:

Designs are divided into three main sections, *fangxin* 枋心 (heart), *zaotou* 藻頭 (girdle) and *gutou* 箍頭 (encircle). The *gutou* 箍頭 occur at the two outermost sections of the composition on the beam, and comprise circular motifs within a broad band encircling the beam. The *zaotou* 藻頭 consists of motifs encircling the beam in a band with lotus panels on one side and ogival shapes on the other. Side by side, these two later degenerate into straight-edged parallel *zigzag* lines. The central and longest part of the decoration, *fangxin* 枋心, runs the length of the

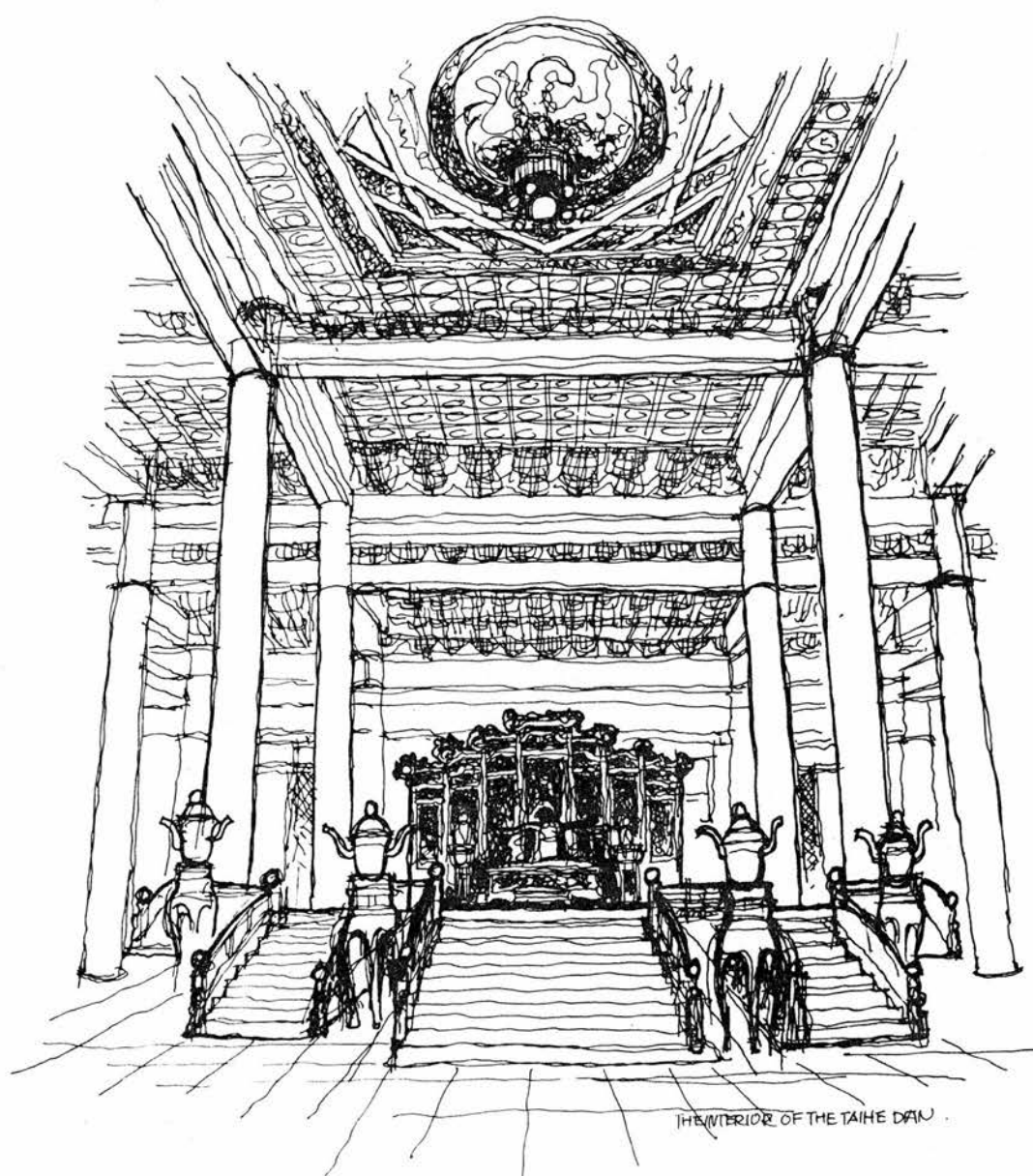


Figure 2.18. The interior design of the Taihe Dian.



middle section of the beam, and consists of elongated panels terminating at both ends in the ogival or *zigzag* shapes mentioned. Occupying the most prominent position, these registers abound with dragons and phoenixes in varied and lively postures. Any spaces between these main areas are interspersed with floral and other motifs, which, combined with the gilding and mainly blue coloration, produce a vivid and stately effect.<sup>67</sup>

The heads of the columns, at their meeting-points with the beams, are painted in green and blue polychrome. The main subject, as with most of the decoration in the Taihe Dian, is the dragon.

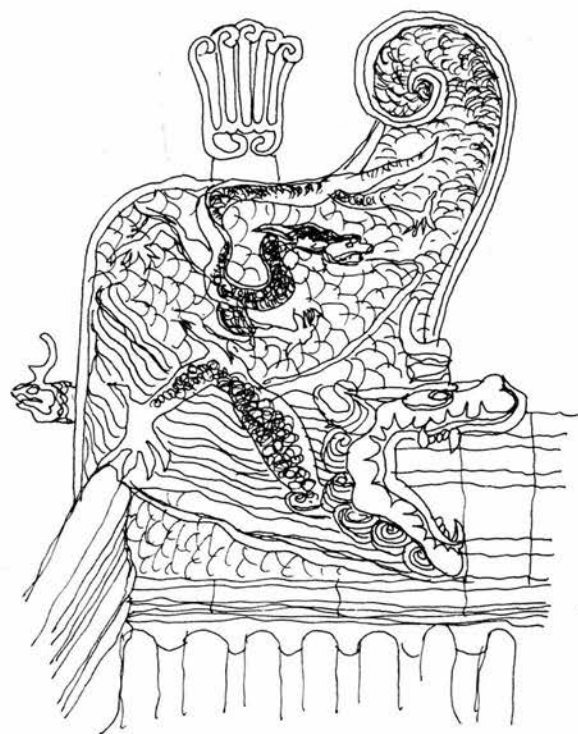
At the junctions of the main ridge and the sloping ridges of the Taihe Dian are placed varied ceramic sculptures, a big *wen* 吻 (acroterion), and immortals and small creatures lining up in procession towards the eave corners (fig.2.17a). These treatments are very close to the antefixae and acroteria in the Parthenon. For instance, at each end of the main ridge is placed a big *wen* 吻. The main ridge itself, measuring 1.8 m. high, is covered with glazed yellow bricks and tiles, and there are no sculptures on it. Eleven smaller mythological animals sit astride the ends of the sloping ridges. Figure 2.20 shows a group of mythological animals on the sloping ridges of the Taihe Dian. They are selected in strict order from a specified list, and the sequence is as follows: an immortal (legend of the tyrant prince of Qi 齊) riding a hen 仙人, dragon 龍, phoenix 鳳, lion 獅, winged or celestial horse 天馬, sea-horse 海馬 (horse that frolics in the waves), *suan-ni* 狻猊 (scaled lion), *ya-yu* 押魚, *xie-zhi* 饕餮 (fire-eater), *dou-niu* 斗牛 and *xing-shen* 行什.<sup>68</sup> These creatures all come from myths and legends. A hornless dragon-shaped head hangs from a corner timber under the end of the corner eaves. The cylindrical imbrex and circular antefix end tiles are covered with an impressed dragon and flower pattern; and a crescentic design with ogival, triangular end tiles incorporates dragon and flower patterns.

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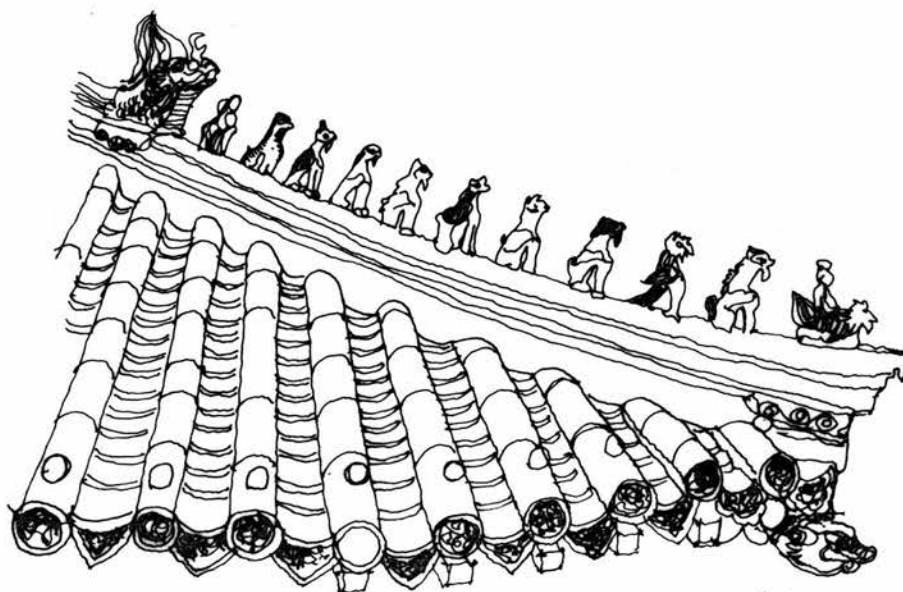
<sup>67</sup> Ibid, p266.

<sup>68</sup> 單士元, 故宮札記, 紫禁城出勝社. Shan, Shiyuan, *Gu gong zha ji*, (The Publishing House of the Forbidden City, Beijing, 1990), p230.





(a)



(b)

Figure 2.19. (a) Acroterion and (b) mythical animals sitting astride the ends of the sloping ridge of the Taihe Dian.



Figure 2.20. Glazed ceramic mythological animals and immortals on the sloping ridges of the Taihe Dian, (a) an immortal (legend of the tyrant prince of Qi 齊) riding a hen 仙人, (b) dragon 龍, (c) phoenix 鳳, (j) lion 獅, (d) winged or celestial horse 天馬, (e) sea-horse 海馬 (horse that frolics in the waves), (f) *suan-ni* 狻猊 (scaled lion), (k) *ya-yu* 押魚, (g) *xie-zhi* 猼訑 (fire-eater), (h) *dou-niu* 斗牛 and (i) *xing-shen* 行什 (drawing based on the photos of Yu, Z.Y., 1984).

In the Taihe Dian, the windows are made in the same way as the upper part of a partition door, called *gexin* 格心 (consisting of a 'lattice window' of ornate open timber work), and covered with paper on the inside (fig.2.21). The lower portion, called *geban* 格板 (skirting-board), is composed of a solid panel or panels with carved applied ornamental features. In the case of the Taihe Dian:

The variable so-called trellis pattern occurs on the lattice windows of the partition doors. Complex geometric patterns are formed by placing the six-pointed petals of a flower tip-to-tip. In this way, the two tips of each petal become the centre of a flower as well as the focus of an imaginary circle drawn around the circumference of the design. Intersecting parallel lines form a 'rhombic lattice' whose lines may cross two or three times. This gives rise to such terms as 'double-crossed six curved water-chestnut blossom pattern' in Chinese.<sup>69</sup>

The upper part of a partition door consists of a 'lattice window' of ornate wooden open work, carved, and with paper on the inside (fig.2.21). The same treatment is used on the silled windows. The lower portion of the partition doors is composed of gilt panels which bear carved coiled dragons amid scudding clouds.

During the *Ming dynasty* 明朝 (1363 - 1644), there were strict rules about the subject-matter of decoration, and about the materials and colours used for decoration. For instance, dragon motifs were to be used only in royal palaces and Confucian temples, and the use of yellow glazed tiles was forbidden in ordinary buildings. Even in the Forbidden City, the patterns and motifs were classified. The ones used in the Taihe Dian were of the highest class and standard.

In the Taihe Dian, the central figure of the interior is the emperor himself, on his throne. The emperor is dressed in the *longpao* 龍袍 (imperial robe, decorated mainly with dragon and water patterns fig.2.22). The throne was built upon a big platform, and was the

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<sup>69</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p236.

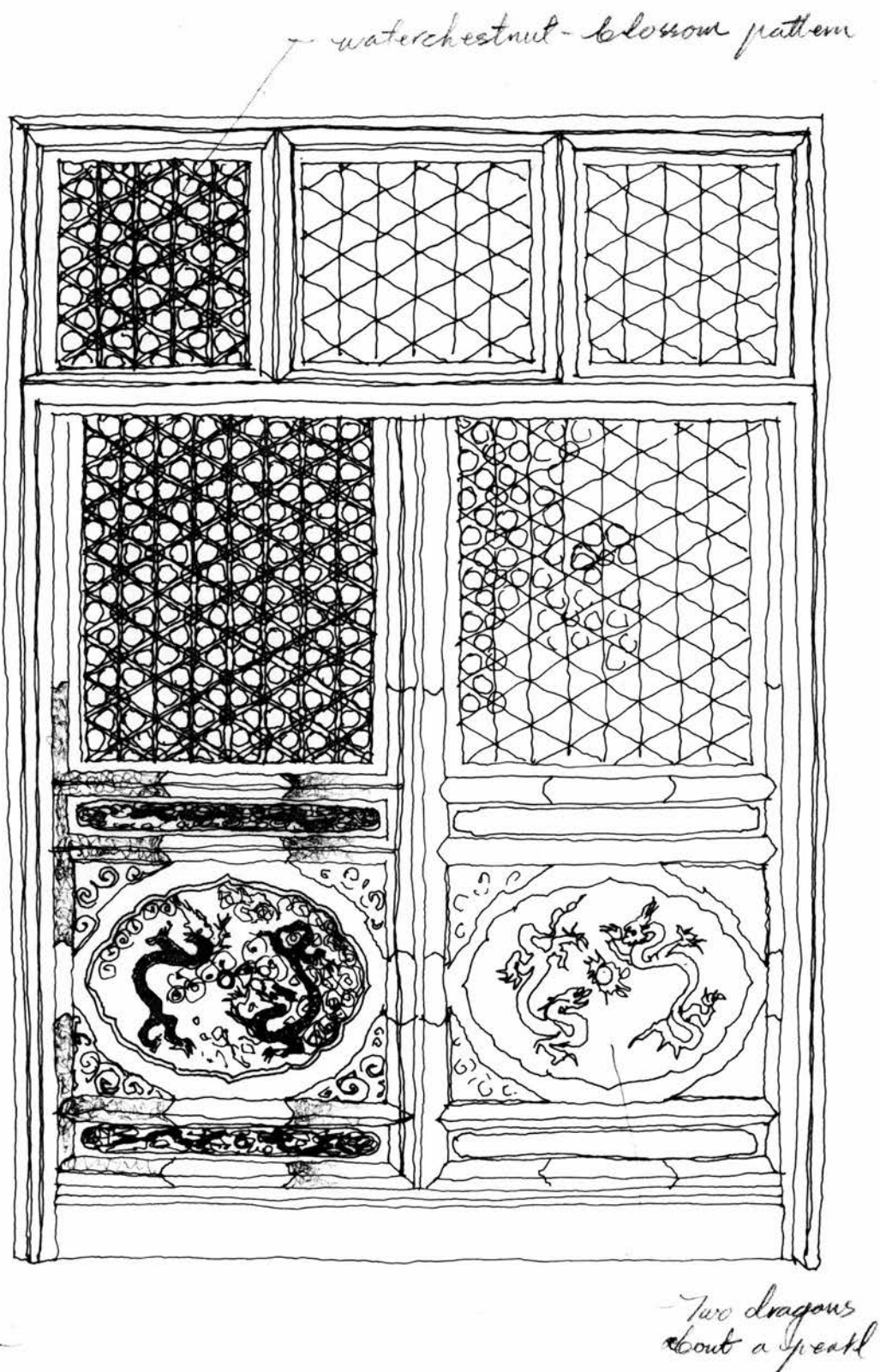


Figure 2.21. The partition doors of the Taihe Dian.



Figure 2.22. The *longpao* 龍袍 (imperial robe, decorated mainly with dragon and water patterns).



central focus for the scheme of decoration. The treatment of the platform of the throne seems to repeat the treatment of the three-tiered marble balustraded terrace in front of the Taihe Dian. For example, as with the marble terrace, there are three parallel stairs, paved with yellow carpets, leading upwards towards the throne. The wooden balustrades and terraces are carved with flowers, dragons and Greek patterns (echinus). Upon the platform there are two smaller platforms, with the gilt throne at the front, and the gilt screen behind it. A fretwork design of two confronting dragons about a flaming pearl on a turquoise ground is used in the decoration of both the wooden and the marble terrace.

Situated upon its three-tiered marble terrace at the centre of the Forbidden City, the Taihe Dian is distinguished by its high and centred location. It has a horizontal axis, a centripetal theme, an enclosed and ordered interior space, a massive structure with symmetrical elevations, refinement, sculptures, reliefs and polychrome paintings.

## 2.3 Conclusion

The Parthenon and the Taihe Dian were the most important buildings of their time. The Parthenon was the most important temple in Athens. It was the most important setting for the political and religious life of the Athenians. Here, the statue of the state's patroness was placed, the most important rituals and ceremonies were held, and the state treasure was kept. Similarly, the Taihe Dian was the most important venue for the political and religious life of the Chinese in the *Ming* and the *Qing* dynasties. It was here that the most important celebrations, rituals and ceremonies were held.

The building of the Parthenon and of the Taihe Dian must be attributed to both political and religious motives. Greek religion was pre-eminently a state religion.<sup>70</sup> All important civil events were dedicated to the goddess Athena, feasts were celebrated in her honour, and

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<sup>70</sup> Hege, Walter, *The Acropolis*, (Ed. G. Rodenwaldt), (Basil Blackwell, Oxford, 1957), p28.



in memorials and inscriptions she was represented as the personification of power. Athena was the heart and spirit of the whole population; and thus she was the goddess who represented the political life of the city. Her temple became her symbol, and was rebuilt again and again. Similarly, the Taihe Dian was a symbol of the emperor, the Son of Heaven; and it too was rebuilt again and again, for it stood as the symbol of the head of the country. In China, the emperor was not only the head of the country, but also had a religious (cosmic) function. He, with the grand hall, was the heart and spirit of the whole population and the man who represented the political and religious life of the nation.

There are many similarities in the treatment of space, form and decoration in the Parthenon and the Taihe Dian, despite the very different cultural backgrounds from which they emerged. Many interesting questions have arisen, and lead us to a further study of the meaning of the treatment of these two buildings in the following chapters:

First of all, both the Parthenon and the Taihe Dian have a high and central location, a horizontal axis and a centripetal theme in the treatment of space, form and decoration. This leads us in the third chapter to examine these treatments, and to discuss why and how they are used in both buildings.

Secondly, the interior spaces of the Parthenon and the Taihe Dian are enclosed and cuboid. This phenomenon leads us in the fourth chapter to examine this treatment and to discuss why and how they are created.

Thirdly, the exterior form of both buildings is divided into the front, flanks and rear; and the elevations are subdivided into three parts horizontally: roof, colonnade and wall, and platform. There is a certain inclination, curvature and proportion in the elements of the exterior forms of the two buildings, which distinguish them from others. In the fifth chapter, we are going to examine the treatment of the exterior forms of the two buildings and discuss why and how these particular exterior forms are found in the two buildings. Both the Parthenon and the Taihe Dian use entasis and tapering in the treatment of the columns and the walls, which also incline inwards and upwards. In the Parthenon the horizontal lines,

stylobate, architraves and cornices. All sag slightly in the middle and have convex outlines. In the Taihe Dian the horizontal lines of the elevation, the long curved eaves and architrave, droop in the middle and turn upwards and outwards at each corner. With these things in mind, we are going to examine refinement in the two buildings in the sixth chapter, and discuss why and how refinement is used.

Finally, myths, legends and sacrifices are represented in the polychrome painted sculptures, reliefs and ornaments in the Parthenon and in the Taihe Dian. In the seventh chapter, we shall examine the treatment of decoration in both buildings and discuss why and how these subjects are chosen.

These similarities in space, form and decoration in the Parthenon and the Taihe Dian offer us an opportunity to explore the origins of these architectural treatments. By a comparison of the two exemplars, we try to find out how those remarkable spaces, forms and decorations in both CWA and CCA were created.

## **CHAPTER III**

# **THE PARTHENON AND THE TAIHE DIAN AS CENTRES**

In Chapter II, we discussed two notable classical buildings, the Parthenon and the Taihe Dian, with their historical and cultural backgrounds. We found that there were many similarities in the treatment of space, form and decoration in the two buildings, despite their very different cultural worlds. This interesting phenomenon leads us in the following chapters to study the significance of space, form and decoration in classical buildings. In this chapter, we are going to examine three treatments in both the Parthenon and the Taihe Dian: high and centred location, the horizontal axis, and the centripetal theme.

Built on the top of the sacred hill, and raised above the city, the Parthenon, with the Acropolis, is situated at the centre of Athens. Similarly, the Taihe Dian is placed upon a three-tiered marble terrace, and located at the centre of the Forbidden City that is itself located in the centre of Beijing. Both the Parthenon and the Taihe Dian have a high and central location. There is a horizontal axis going through the centre of the interior space of the two buildings, and a centripetal theme is represented in their space, form and decoration. We suggest that these three architectural treatments are associated with the expression of the notion of a Centre. In the following study we shall show how the cosmic

order is expressed in the space, form and decoration of the Parthenon and of the Taihe Dian.

### **3.1 The three characteristics of the Parthenon and of the Taihe Dian**

#### **3.1.1 The high and central location**

To build a temple on a high place was a common practice in Greek temple architecture. In the case of the Parthenon, as we saw in Chapter II, the builders used the hill skilfully as a high terrace for the temple. The temple stands upon a three-tiered marble platform. The city of Athens is situated at the centre of the plain of Attica, an area surrounded by mountains - to the west, Aigaleos; to the north, Parnis; and to the east, Hymettus and Pentelikon - and bounded in the south by a jagged coastline.<sup>71</sup> The Parthenon stands upon the top of the sacred hill, the Acropolis. It is located upon the highest and the most central place in the city (fig.3.1).

Similarly, the Forbidden City was situated at the centre of the Ming's Beijing. The Taihe Dian, together with two other great halls, the *Zhonghe Dian* 中齋殿 and the *Baohe Dian* 保齋殿, stands upon a large three-tiered marble terrace (fig.3.2). It is placed on the highest terrace in the palace, and it, with the three-tiered marble terrace, is situated at the centre of the Outer Court, which is situated at the centre of the palace.

Comparing the location of the Parthenon and the Taihe Dian, we can see:

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<sup>71</sup> Benevolo, Leonardo, *The History of the City*, (transl. Geoffrey Culverwell), (Scholar Press, London, 1980), p69.

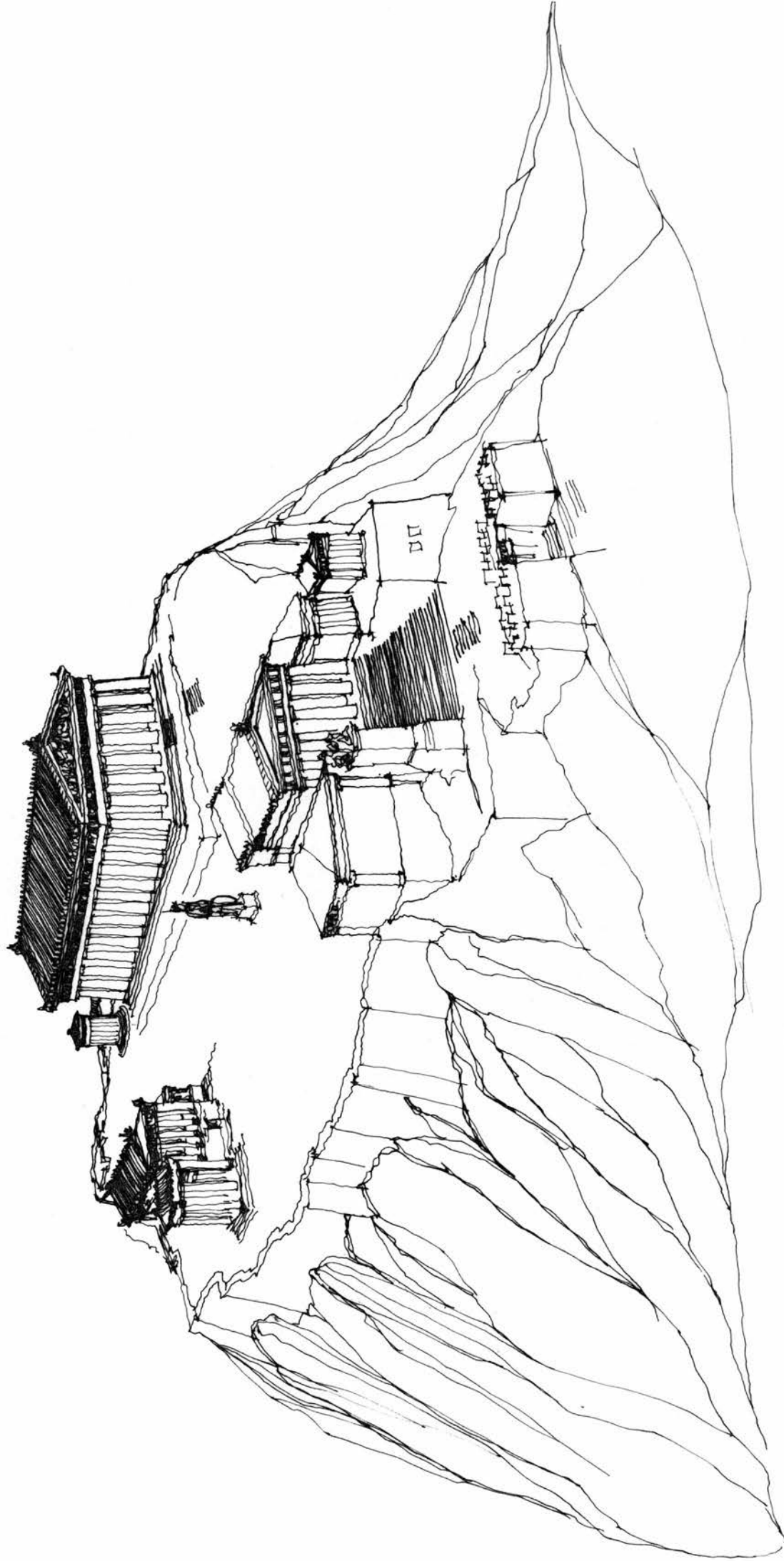
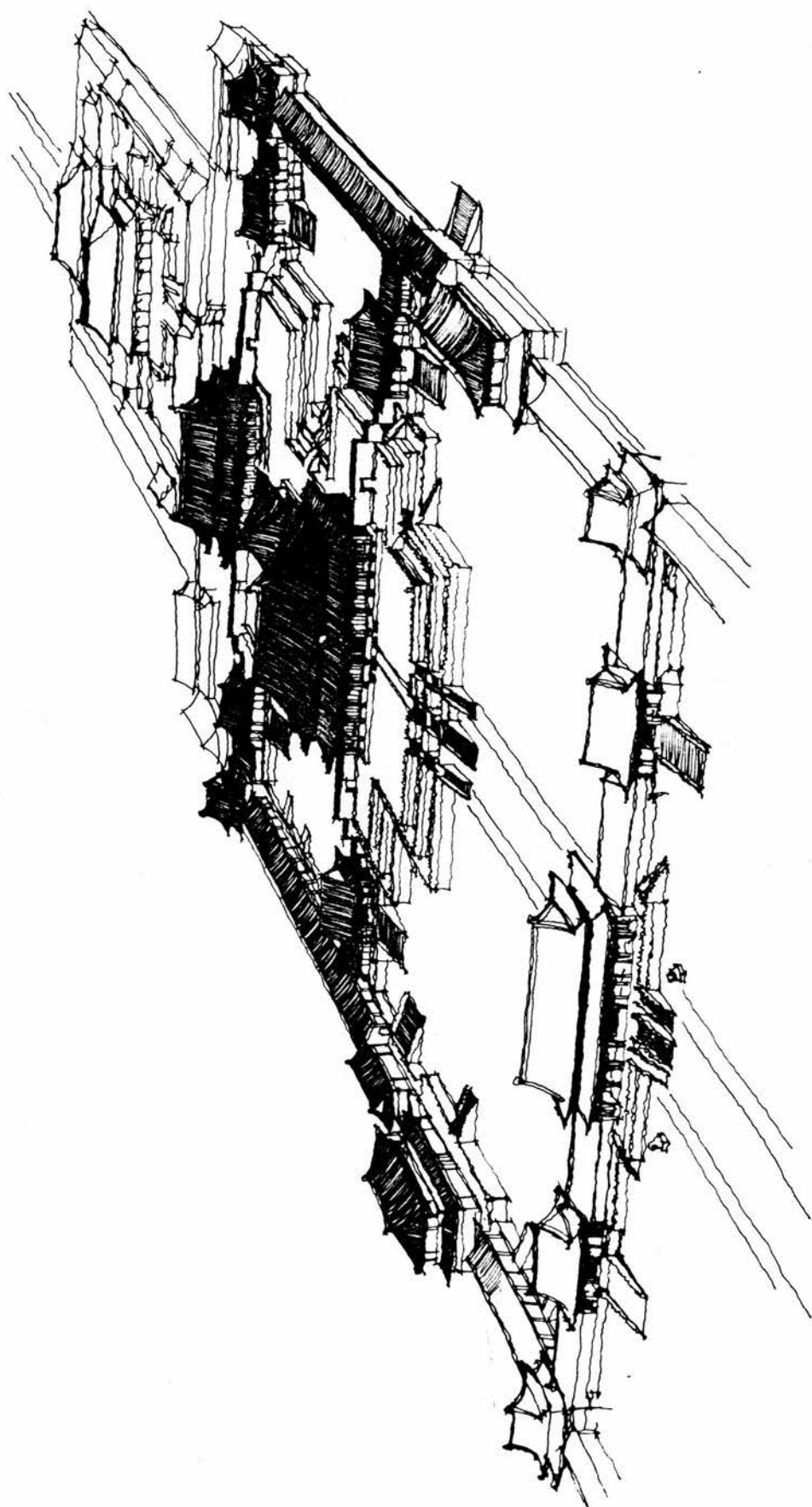


Figure 3.1. The Acropolis at Athens.

Figure 3.2. The Taihe Dian, with the two other Grand Halls of the Forbidden City.





**Parthenon:**

1. The cult statue of Athena is placed in the cella and on the axis.
2. The temple is placed on a three-tiered marble platform, which is on the top of the hill.
3. The Acropolis is situated at the centre of Athens.

**Taihe Dian:**

1. The gilt throne is placed on a large wooden terrace which is located on the axis of the hall.
2. The hall is placed on a marble platform, which is placed upon the three-tiered marble terrace, which is the highest terrace in the palace.
3. The hall is situated at the centre of the palace which is placed at the centre of Beijing.

Building a three-tiered terrace with balustrades was not a common practice in ancient China. The white marble balustrades of the Taihe Dian are composed of two main parts: the upright stone posts, and the lintels which fill the spaces between them. Cut from a single marble slab, the lintels comprise the rail, baluster and solid, decorated panel which form the longest portion. A gargoyle protruding from the base of each post (fig.2.17b) lies between the flights of steps approaching and leaving the main halls; and at the same angle run large carved marble ramps which form part of the Imperial Way. There are three such carved stone slabs at the front of the three-tiered marble terrace. In the Forbidden City most halls stand on a single wide platform surrounded by marble balustrades. Only the most important halls in CCA are placed on a three-tiered marble terrace.<sup>72</sup>

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<sup>72</sup> For instance, three halls of the highest rank constructed during the years of *Yongle* 永樂 - namely, the Taihe Dian, the Hall of Praying for good harvest of the Temple of Heaven, and the Hall of Heavenly Favours at the tomb of the Yongle 永樂 emperor, - all stand on a three-tiered marble terrace skirted by marble balustrade.

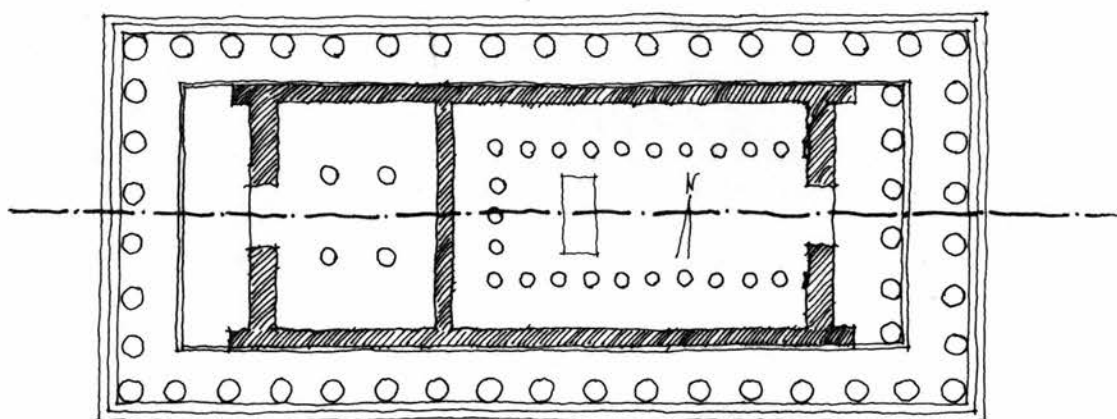
### 3.1.2 The horizontal axis

As we saw in Chapter II, the Parthenon and the Taihe Dian exhibit a symmetry in both space and form; and a strong axis goes through their symmetrical plan and elevation. With symmetry on the axes, the right half of the plan and elevation is simply a mirror-image of the left. Because of this, a horizontal axis is formed in both the plan and the elevation.

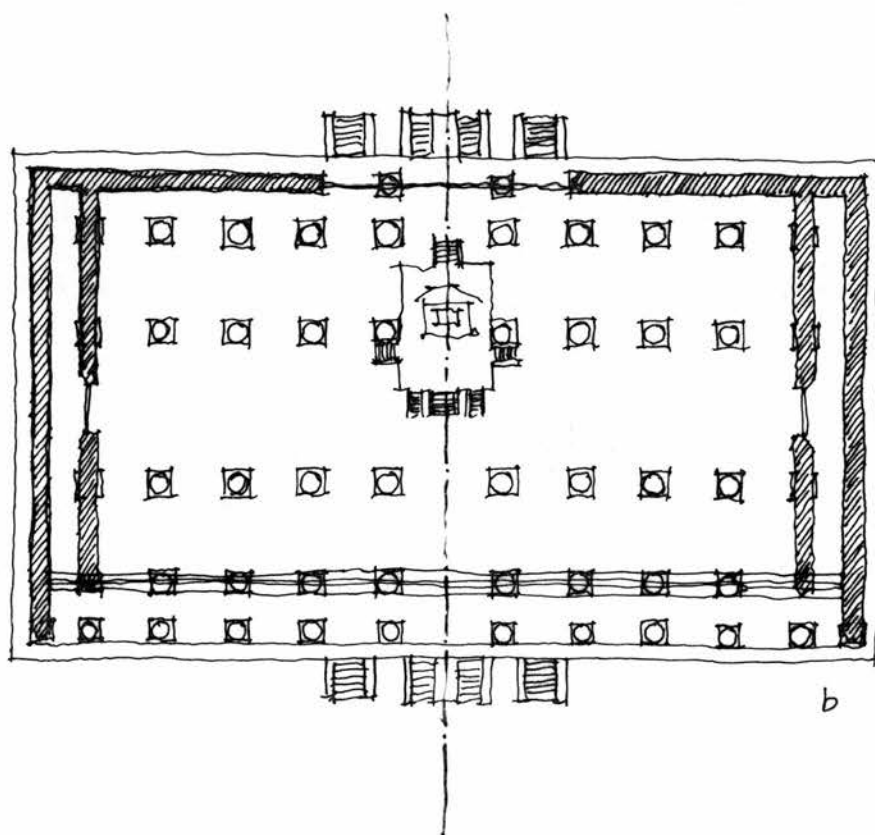
Most important temples of the Hellenic period have a simple rectangular plan with a horizontal axis. In the case of the Parthenon, the axis is formed by a narrow and longitudinal interior space (fig.3.3a). It runs through the centre of the interior space. Beyond the doorway, the axis extends onwards and outwards. The portico of the Parthenon is symmetrical. The eight Doric columns spread outwards from the central bay. The steps, the doorways, the central figures of the sculptures in the pediments, and the large acroteria are all placed upon the axis. The main ridge of the roof lies along the axis (fig.3.4a); and the two sloping roofs and the sculptures on the roof spread outwards from the axis too.

Similarly, the axis of the Taihe Dian is formed by a symmetrical interior space (fig.3.3b). It goes through the centre of the interior space. Through the doorways, the axis extends towards the exterior, approaching the *Zhonghe Dian* 中齋殿 on the north and the front courtyard on the south. As with the Parthenon, the front elevation of the Taihe Dian is symmetrical. The main steps of the platform and terrace, the main door-ways and the plaque of the grand hall are placed upon the axis (fig.3.4b).

Comparing the treatment of the axis in the Parthenon and in the Taihe Dian, we find:



a



b

Figure 3.3. (a) Axis of the Parthenon and (b) axis of the Taihe Dian.

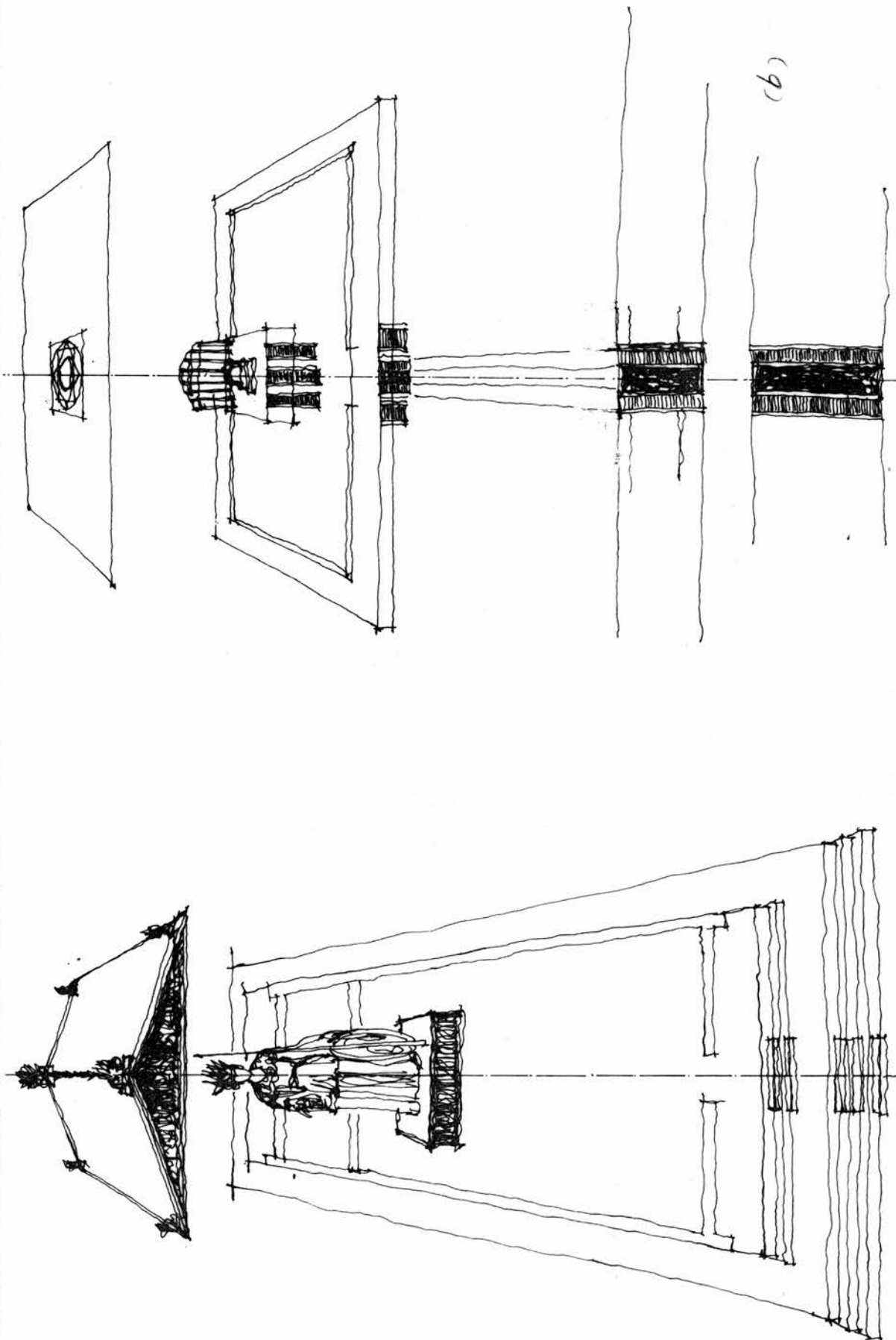


Figure 3.4. Important features located upon the axis of the Parthenon (a) and of the Taihe Dian (b).

### **Parthenon:**

1. The axis is formed by an extremely symmetrical interior space, and it goes through the centre of this longitudinal interior space. The cult statue of Athena with its platform, and the entrances, are all placed upon the axis. Through the doorway the axis extends towards the outside.
2. The elevation of the Parthenon is symmetrical along the axis. Eight Doric columns spread outwards from the central bay. The steps, the doorways, the central figure of the sculptures on the pediment, and the large acroteria are placed upon on the axis. The treatment of the exterior of the temple is symmetrical along the axis.
3. The axis of the Parthenon is not intended to make contact with the axes of the other temples on the hill, and has no relation with the axes of the other buildings on the hill.

### **Taihe Dian:**

1. The axis is formed by an extremely symmetrical interior space, and it goes through the centre of this horizontal space. All the important elements in the interior space, are placed in the central bay and upon the axis. Through the doorway in the central bay the axis extends towards the exterior.
2. The elevation of the Taihe Dian is symmetrical. The main steps of the platform and terrace, the main gateway, and the plaque of the Taihe Dian are placed upon the axis.
3. The axis of the Taihe Dian is extended to the front courtyard by its symmetrical elevation and the symmetrical treatment of the courtyard. The horizontal axis across the main gate-house goes through the centre of the courtyard. The axis of the Taihe Dian runs through the city.

The exterior colonnades close the two interior spaces. The treatment of the portico is also centripetal, for the arrangement of form represents a radiation from the centre of the elevation which the horizontal axis runs through. The composition of a group of sculptures on the two pediments of the Parthenon shows a clear intention to use radiation. These sculptures all spread outwards from the central figures, the statues of Zeus and Athena.

The axis of the Taihe Dian is extended to the front courtyard. A horizontal axis across the main gate-house, the Gate of the Supreme Harmony, goes through the centre of the courtyard, and along a marble paved road (the Imperial Way). The treatment on the two sides of the axis is exactly the same (fig.3.2). In CCA, the courtyard and the halls are usually

placed upon the same horizontal axis. So along the axis is a series of spatial sequences, as is the case in the Taihe Dian.

In Greek temple architecture the use of the axis seems to be focused on the temple and its interior, as is the case with the axis in the Parthenon; for the temple seems to be isolated and complete in itself. The buildings on the Acropolis are not treated as being in any relationship to each other, but as separate units; and the axis of the Parthenon has no relationship with that of the other buildings. The axis of the Taihe Dian is, in contrast, continuous throughout the interior space, from the southern gateway to the northern one. Then it extends towards both the front and rear courtyards, and also goes through the centre of the palace and the city. All the important halls and courtyards in the Forbidden City are placed upon the axis. Along the axis there is a continuous spatial sequence.

### **3.1.3 The centripetal theme**

Centripetality is seen in the arrangement of space, form, and decoration in the Parthenon and in the Taihe Dian. The strong tendency to centripetality has been seen in the treatment of the interior and the exterior of both buildings. In the eastern cella of the Parthenon, the galleries all open towards the centre of the interior space. The decorations on the walls and ceilings face the centre of the space, straining centripetally towards it (fig.2.9). Corresponding with the treatment of the interior space, the treatment of the exterior of the Parthenon shows a strong tendency to radiation outwards from the centre. The three-tiered platform spreads outwards from the top to the bottom. The colonnades and galleries open outwards in four directions. The decorations on the entablature, horizontal cornices, triglyphs, metopes, and the frieze on the top of the gallery all radiate from the centre. The roofs spread outwards from the ridge. The decorations on the roof - acroteria, antefixes, and the four lion-head sculptures - also radiate from the ridge towards the outside.



Similarly, in the Taihe Dian, the bracket sets and painted decorations have an obvious tendency to flow upwards towards the centre of the ceiling and the caisson (fig.2.18). The treatment of the exterior of the hall has a strong tendency to point outwards from the centre. The arrangement of space, form and decoration on the exterior of the hall radiates from the centre. The steps, platform and three-tiered terrace all spread outwards from the top to the bottom. Glazed ceramic mythological animals and immortals on the sloping roof ridges all move motionlessly outwards. Cylindrical imbrex and circular antefix end tiles all face outwards. The tile gutters and the rafters are arranged radiating from the horizontal ridge outwards, as are the bracket sets and rafters under the eaves. The tendency towards the centre in the roofs of the Taihe Dian is equal on the four sides, and from the ridges the gutters go in four directions.

Comparing the centripetal treatment in the Parthenon and in the Taihe Dian, we can see:

#### **Parthenon:**

1. The galleries in the cella all open towards the centre of the interior space, and the decorations on the walls and ceilings all face the centre of the space.
2. The three-tiered platform spreads outwards from the top to the bottom. The colonnades enclose the temple on four sides, and the galleries open outwards.
3. The decoration on the roof - acroteria, antefixes, and four lion-head sculptures - all radiate from the ridge or the axis towards the outside.

#### **Taihe Dian:**

1. All arrangements of space, form and decoration in the interior space are centripetal in relation to the throne. The bracket sets have an obvious focus upwards towards the centre of the ceiling, the large caisson.
2. The steps, platform and three-tiered terrace all spread outwards from the top to the bottom.
3. Glazed ceramic mythological animals and immortals on the sloping roof ridges all move motionlessly outwards. The tile gutters and the rafters are arranged radiating from the horizontal ridge outwards, and the bracket sets and rafters under the eaves spread outwards.

The arrangement of space and form in the front courtyard of the Taihe Dian is also centripetal. The gate-houses, low-ridged galleries, corner towers and flank halls surrounding the courtyard all face the centre of the courtyard and the three grand halls (fig.3.2). The position of the Taihe Dian in the Courtyard, as we mentioned in Chapter II, is identical to that of the throne in the interior space of the hall.

### **3.2 Expression of the notion of the Centre in the Parthenon and in the Taihe Dian**

We have seen that the idea of high and centred location, the horizontal axis and centripetal theme is similar in both the Parthenon and the Taihe Dian, but this only shows what the similarities are and is of limited interest for us, for showing that there are such similarities in the architectural treatment of the two buildings can speak only of 'what', never of 'why'. Why do they have such similarities despite the different cultural worlds from which they emerged? This is what we are trying to discover. Here, therefore, we expand our inquiry to the question of why there are so many similarities between the two buildings. To answer this question, we need to explore the meaning behind these treatments in both buildings, to see what is expressed in the treatment of space, form and decoration. This means, first of all, that we assume that architectural treatment in both CWA and CCA can be interpreted as carrying some meaning and having a cosmic function. Then, we must try to discover what was thought to be the link between architecture and the cosmos.

Those similarities in architectural treatment in the Parthenon and the Taihe Dian are a result of the similarity in architectural expression. They reflect a similarity of outlook. To find what was expressed by these architectural treatments, we need to find out if there was a common interpretation of the nature of the universe. So we introduce some concepts from Mircea Eliade's works, for he has argued that certain basic features of architecture are

extremely widespread in ancient, traditional and pre-modern societies, and that architecture, for such societies, fulfils a symbolic function which is independent of the nature of any particular society and its culture. The creation of architectural space, form and decoration is linked to a view of the cosmic order. For example, the notion of a Centre is claimed by Mircea Eliade to be involved in the architectural treatment of space, form and decoration.

### 3.2.1 The notion of the Centre

The Centre is one of the most important cosmic notions in a traditional society, such as that of ancient Egypt, India or China. Every temple or palace is regarded as a Centre, so that the notion of a Centre is expressed in the treatment of the buildings. Mircea Eliade writes:<sup>73</sup>

Paralleling the archaic belief in the celestial archetypes of cities and temples, and even more fully attested by documents, there is, we find, another series of beliefs, which refer to their being invested with the prestige of the Centre. We examined this problem in an earlier work; here we shall merely recapitulate our conclusions. The architectonic symbolism of the Centre may be formulated as follows:

1. The Sacred Mountain - where heaven and earth meet - is situated at the centre of the world.
2. Every temple or palace - and, by extension, every sacred city or royal residence - is a Sacred Mountain, and thus a Centre.
3. Being an axis mundi, the sacred city or temple is regarded as the meeting point of heaven, earth, and hell.

The Sacred Mountain, a Centre, is located at the centre of the world. According to Mircea Eliade, this symbol of a Mountain, a Tree or a Column situated at the centre of the

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<sup>73</sup> Eliade, Mircea, *The Myth of the Eternal Return*, (transl. Willard. R. Trask), (Princeton University Press, Princeton, 1955), p12.

world has been widely held, for the territory, the city, the temple or the royal palace thus stood at the centre of the world. It is on the summit of the Cosmic Mountain, which is regarded as the highest place in the world.<sup>74</sup> This is the case with China where the centralising of buildings and cities is well established. For people who live in a traditional society, the cities, temples and palaces are all, in effect, situated at the centre of the world.

Every city, temple or palace is a Centre. It is situated on the summit of the Cosmic Mountain. This summit of the Cosmic Mountain is not only the highest point on the earth, it is the navel of the earth, the point at which creation began; and the creation of man, a replica of the cosmogony, took place in the centre of the world.<sup>75</sup> In most ancient civilisations in the world, the Centre is imaged as a Cosmic Tree which is situated in the heart of the Universe. It supports the three worlds, Heaven, Earth and Hell, upon one axis. Every Centre is only a replica of this Cosmic Tree, and every city, palace or temple is an imperfect copy of this exemplary archetype, the Cosmic Tree. "Thus, all these sacred trees are thought of as situated in the centre of the world, and all the ritual trees or posts which are consecrated before or during any religious ceremony are, as it were, magically projected into the centre of the world."<sup>76</sup> These cities, temples or palaces are only replicas, repeating the same archetype - the Sacred Mountain.

The Centre is a meeting place of the three cosmic zones; heaven, earth, and hell. It is, in China, the place where earth and sky meet, where the four seasons merge, where wind and rain are gathered in, and where *yin* and *yang* are in harmony. For the Chinese, this place of supreme harmony is a Centre, where, upon the axis mundi, the sacred city, temple or palace is regarded as the meeting point of the three cosmic regions of Heaven, Earth and Hell. It is only at this meeting point, where ritual and ceremony are held, and sacrifices are dedicated to the gods, that communication between the three worlds becomes possible.

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<sup>74</sup> Eliade, Mircea, *Images and Symbols: Studies in Religious Symbolism*, (transl. Willard. R. Trask), (Harvill Press, London, 1961), p43.

<sup>75</sup> Ibid.

<sup>76</sup> Ibid, p44.



"The Centre of the world" is the sacred place where Heaven and Earth are 'vertically' connected. As an opening to Heaven, it is symbolically, it not actually, 'a high place' and through it passes the axis mundi."<sup>77</sup>

In his works, Mircea Eliade mentions traditional societies in the Oriental civilisations, and in the Indo-European world. As we said earlier, the Centre was an important notion in ancient China. This view is supported by historical investigation and by a study of extant architectural remains. But evidence of a notion of a Centre is less easy to find in the case of ancient Greece. However, at some stages, the notion of a Centre, is also found in Western civilisation. As we shall see, it is expressed in CWA.

### **3.2.2 Notion of the Centre expressed in the buildings**

The sacred place is a Centre; and the Parthenon and the Taihe Dian are sacred. The notion of the Centre is expressed in the treatment of architectural space, form and decoration in the two buildings. We suggest that its high and centred location, its horizontal axis and its centripetal theme (in both CWA and CCA) mean that a building is a Centre.

#### **High and central location and the Centre**

The notion of the Centre is expressed by a high and central location in the case of both the Parthenon and the Taihe Dian. Figure 3.5 shows that the platform of the cult statue of Athena is placed at the centre of the eastern cella; and that together with the western chamber, the cella is placed on a two-tiered marble platform, which is placed upon a three-tiered marble platform. The two interior spaces are sited at the highest point on the Acropolis. The three-tiered platform is of a large scale, about one metre in height, and the

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<sup>77</sup> Wilson, C.B. "Building a Microcosm," in *Shadow: the newsletter of the Traditional Cosmology Society*, Vol.3 No.1, Edinburgh, 1986), p10.

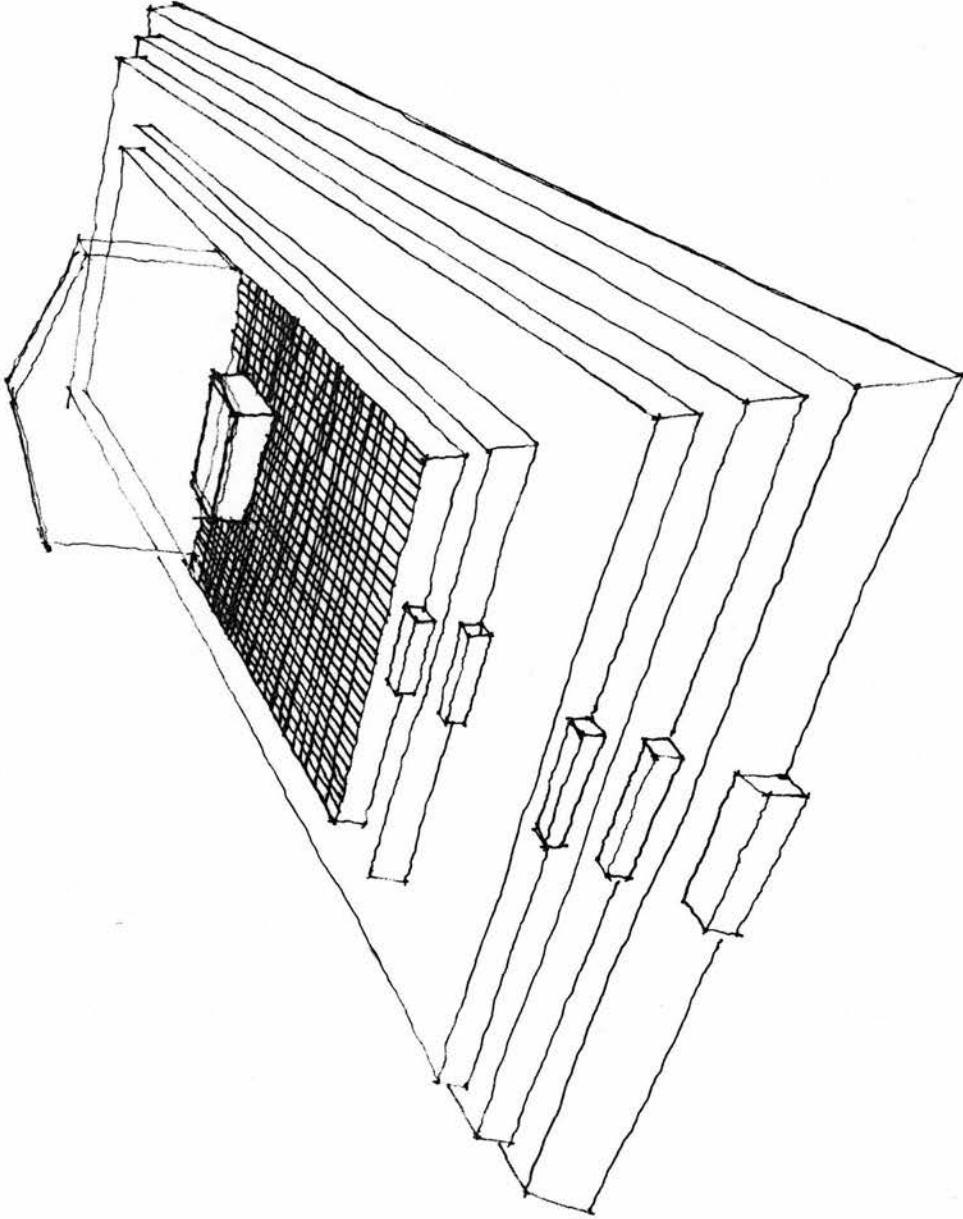


Figure 3.5. The cella is located upon the three-tiered marble platform.



purpose of the treatment is clear. Similarly, the Taihe Dian is placed upon a marble platform. The gilt throne is placed upon a platform in the Taihe Dian (fig.3.6), and, together with the gilt platform, is placed upon a large wooden terrace. On the front of the wooden terrace, there are three steps leading upwards towards the platform of the throne, the highest place in the hall. The gilt throne is placed at the centre of the wooden terrace, which is located at the centre of the interior space. The grand hall stands upon a marble platform which is placed on the three-tiered marble terrace. Here we find:

1. The notion of the Centre is expressed by the buildings' being placed on a high platform and situated at the centre of the complex.
2. The most important Centres, such as the Parthenon or the Taihe Dian, are situated on the highest and most central place.

The positioning in a high and centred location of the Parthenon and of the Taihe Dian indicates that the temple or palace is a Centre; and that the Centre stands on the summit of the Cosmic Mountain at the centre of the world.

#### The Parthenon:

The temple stands on the highest point of the Acropolis, with its two interior spaces, the eastern cella and the western chamber, placed on a high platform. This implies that it is situated on the summit of the Cosmic Mountain. The temple, with the Acropolis, is located at the centre of the city, which signifies that it is situated at the centre of the world.

#### The Taihe Dian:

The grand hall stands upon a high platform; and, together with the two other grand halls, it stands upon the top of a three-tiered marble terrace. This implies that it is situated on the summit of the Cosmic Mountain, the highest place in the world. It is situated at the centre of the palace and the city, which signifies that it is situated at the centre of the world.

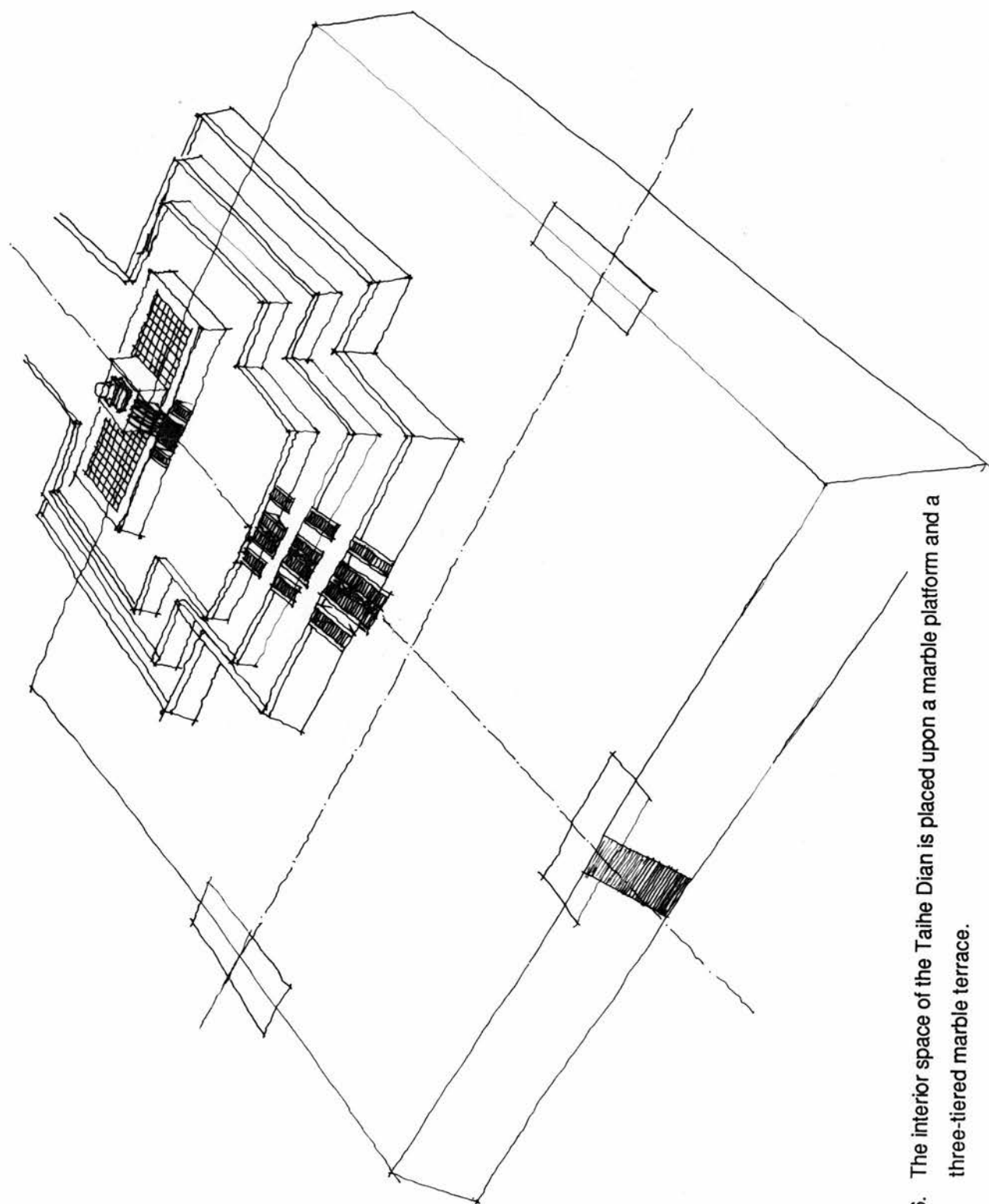


Figure 3.6. The interior space of the Taihe Dian is placed upon a marble platform and a three-tiered marble terrace.

The high platform is one of the major characteristics of Greek temple architecture. The temples of Greece are all placed upon a high platform or terrace. Not only the Parthenon, but temples such as the Temple of Zeus at Olympia and the Temple of Apollo at Delphi, were placed on a high platform. Some later examples of CWA retain this treatment in a more stylised form.

In CCA, the treatment of the high platform can be dated back to as early as the *Shang* dynasty 商朝 (1600-1028 BC) and the *Western Zhou* dynasty 西周 (1066-770 BC). The *Shang* 商 palace at *Anyan* 安陽 was placed on a high podium. The *Zhou Ritual* 周禮 specifies the height of a podium as three *chi* 尺, equivalent to one metre.<sup>78</sup> During these periods, the use of high terraces had always been a major feature of palace construction. With the passage of time, the terrace became more and more sophisticated. Balustrades were added to the edges of the terrace and the two became integrated into a single unit. From about the first century AD, and directly influenced by Buddhism, the highest ranking buildings were built on elaborate, many-tiered terraces which embodied the concept of *Sumeru*, the central mountain peak of the Buddhist universe.<sup>79</sup> The temples in China were all placed on a high platform or terrace.

It is clear that the central planning was taken more seriously in ancient China than in ancient Greece. The Chinese, from the earliest stages of their civilisation, built palaces at the centre of the city. According to the book *Kaogong Ji* 考工記, during the *Zhou* 周 the master builders who laid out a capital made it nine *li* 里 (about three miles) square, with each side having three gateways. Within the capital city there were nine avenues running one way, and another nine crossing them at right angles. The width of each avenue was nine chariot-tracks or axle-widths. On the left (east) was located the ancestral temple, and on the

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78 Liu, Laurence. G., *Chinese Architecture*, (Academy Editions, London, 1989), p33.

79 Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p212.



right the altar of earth. The palace was placed at the centre of the city.<sup>80</sup> Figure 3.7 illustrates this theory of Chinese city-planning. An ideal capital city, as we see from this illustration, is rectangular in plan. The palace is situated at the centre. There is an axis going through the centre of the city and of the palace. There are five gate-houses between the southern gate-house of the city and the gate-house of the palace. The ancestral temple is placed to the left of the palace, and the altar of earth to the right. The plans of the *Zhou* 周 cities described in the *Zhou Ritual* 周禮 became models for the later Chinese cities, such as Beijing. The palace and the Forbidden City were placed at the centre of Beijing.

Looking at the plan of the *Ming* 明 Beijing (fig.2.10), we see that there are three cities: the Forbidden City, the Imperial City, and the palace City. Each of the three cities is enclosed by walls on four sides. The Taihe Dian is placed at the centre of the Imperial City and the Inner City. This treatment is derived from the notion of a Centre.

Figure 3.8 shows that the three grand halls, the Taihe Dian, the *Zhonghe Dian* and the *Boahe Dian*, stand on the summit of a pyramid, which stands at the highest and the most central place in the courtyard, in the palace, and in the city. A strong north-south axis runs through the peak of the pyramid where the Ming emperor sat on the gilt throne.

In the case of the Forbidden City, its central location is marked by the colour of the roofs. Hundreds of the roofs in the palace are covered in yellow glazed tiles, for yellow is a colour which in China represents the centre. Comparing the central location of the Acropolis with that of the Forbidden City, we can see that the central location of the Acropolis is more significant. The Acropolis is not situated at the geometrical centre of the city, which grew up informally around the sacred hill.

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80 The *Kaogong Ji* 考工記, a document with some claim to antiquity which was substituted for a lost section of the *Zhou Ritual* 周禮 was written in the *Eastern Zhou* dynasty.

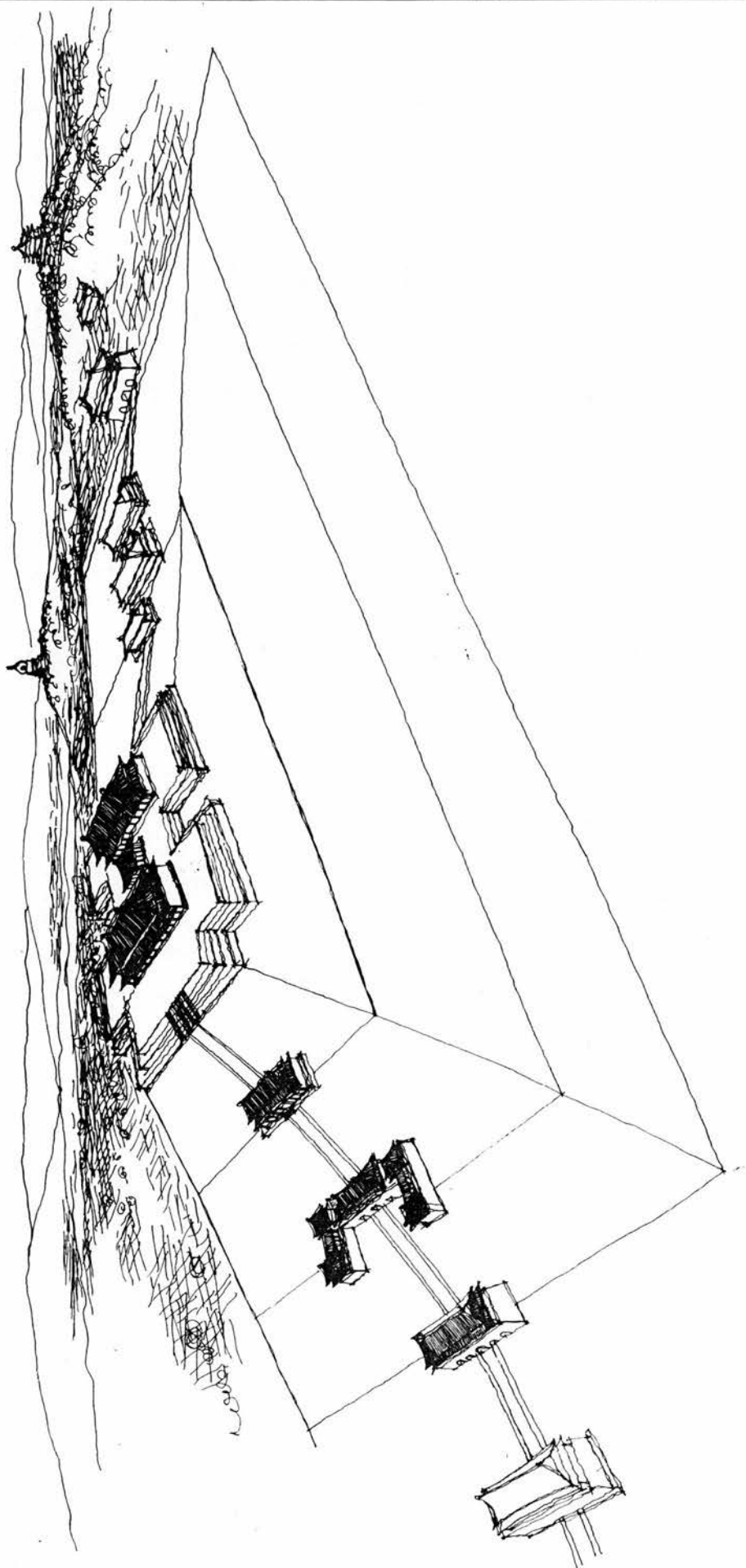


Figure 3.8. The Three Grand Halls, as Centres, stand on the summit of the cosmic mountain,  
and at the centre of the world.



## The horizontal axis and the Centre

The Parthenon and the Taihe Dian lie symmetrically along an axis, and all the important elements of space and form are placed upon the axis (fig.3.4a&b); for a sacred place, a Centre, is symmetrical and ordered, with an axis going through it. This sacred place is an intersection between earth and heaven. The horizontal axis is the 'way' towards the Centre, and the steps and doorways are all placed upon the axis.

In the Parthenon the cult statue of Athena is placed on the axis. The treatment of space, form and decoration in the temple is completely symmetrical. Led by steps and doorways on the axis, one climbs the platform and terrace and reaches the building, which implies an approach to the centre of the world. Similarly, in the Taihe Dian, the treatment of space, form and decoration of the hall is completely symmetrical and on the horizontal axis. Led by the steps and doorways on this axis - the way towards the Centre - one climbs the platform and terrace, and reaches the grand hall. It means that the person is approaching the centre of the world. These architectural treatments - the platform, the horizontal axis and the steps - are created by the builders in order to provide a fitting meeting-place for the microcosm and the macrocosm.

The horizontal axis of the Taihe Dian is also the axis of the palace and the city. Figure 3.9 shows the arrangement of the axis of the Taihe Dian and of the city. From this diagram, we can see that all the important gate-houses, halls and courtyards in the palace and the city are placed upon the same axis, and that along this axis is a series of spatial sequences. Beginning from the south, there is the:

Southern Gate 正陽門 (front gate of the Inner City)

Gate of the Great *Qing* 大清門

Gate of Heavenly Peace 天安門 (front gate of the Imperial City)

Gate of uprightness 端門

*Wu Men* 午門 (the Meridian Gate)

Gate of Supreme Harmony 太極門

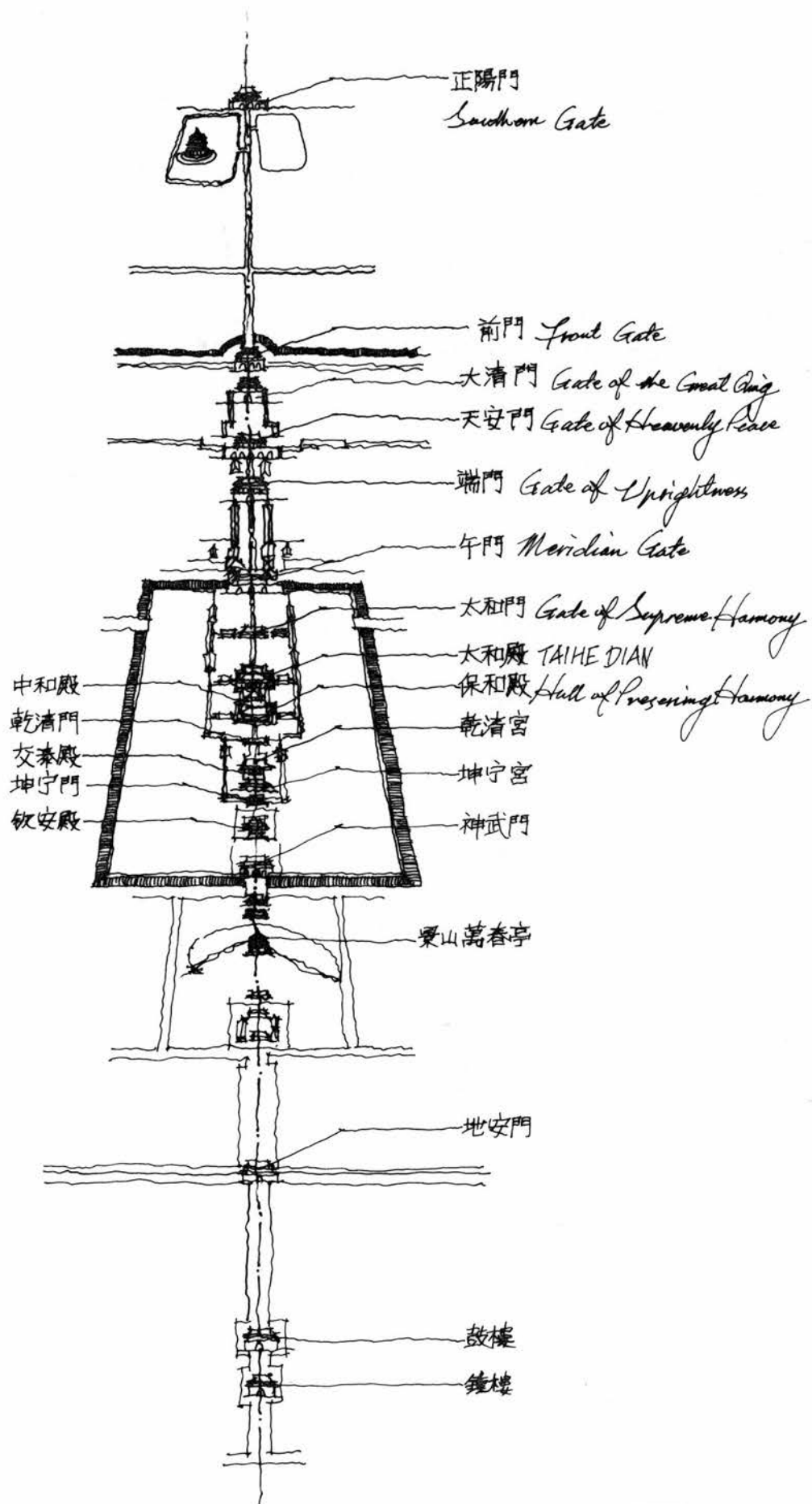


Figure 3.9. Axis of the Forbidden City and Beijing (from Yu, Z.Y., 1984).

Taihe Dian 太極殿

*Zhonghe Dian* 中極殿 (the Hall of Complete Harmony)

*Baohe Dian* 保極殿 (the Hall of Perpetual Harmony)

*Qianqing Gang* 乾清宮 (the Palace of Heavenly Purity)

*Jiaotai Dian* 交泰殿 (the Hall of Union)

*Kunning Gong* 坤寧宮 (the Palace of Eternal Tranquillity)

*Shenwu Men* 神武門 (the Gate of Martial Spirit)

This spatial sequence consists of a series of gate-houses, halls and courtyards, measuring more than 2,000 metres in length. The Taihe Dian with its front courtyard stands at the middle of the axis. To go into the Taihe Dian along the axis leading from the southern gate-house is to experience a series of spatial sequences; and to pass the gate-houses and approach the Taihe Dian is also a journey to the Centre. This arrangement that placed all important halls, courtyards and gate-houses on the same axis expresses a view of the cosmic order.

Comparing the arrangement of the interior space of the Taihe Dian with that of the eastern cella of the Parthenon, we find that the axis in the Parthenon is emphasised by a narrow and longitudinal interior space, with two flanking colonnades and two-tiered galleries; whereas in the Taihe Dian it is emphasised by its extending towards the front and rear courtyards. But both treatments have a significance. The horizontal axis, with a longitudinal and narrow interior space, is an important characteristic of Greek temples. Most later examples of CWA follow this arrangement.

## **Centripetal treatment and the Centre**

The arrangement of space, form and decoration in both the Parthenon and the Taihe Dian is centripetal: the architectural treatment represents a strong tendency towards the centre of the building. The interior space of the Parthenon - the eastern cella, for instance - has a strong tendency towards the centre and the axis. The centripetal treatment indicates the

centre of the interior space where the vertical axis, the axis *mundi* (the axis of the universe), and the horizontal axis meet. Similarly, the arrangement of the interior space of the Taihe Dian has a strong tendency toward the centre of the space where the emperor is seated on the throne. The composition of the decorations, sculptures or reliefs in the Taihe Dian represents a strong tendency towards centripetality. For instance, the design on the large gilt caisson at the centre of the ceiling of the Taihe Dian is of a writhing dragon holding a pearl in its mouth; and it, and the medallions of dragons, phoenixes and flower motifs are all centripetal. The vertical axis stands at the centre of the space and goes through the centre of the ceiling where the dragon occupies the centre of the dome. In fact, centripetality of space, form and decoration in both the Parthenon and the Taihe Dian is towards a vertical axis, and towards the point of intersection of the horizontal axis and the vertical axis, the centre of the world.

The state of being centripetal to the centre of the interior space is more clearly seen in the Greek temples of circular plan, for the vertical axis is formed by the circular space and the dome. For instance, in the case of the tholos near Epidauros (built in 360 BC), twenty-six columns encircle the pteron, and another fourteen Corinthian columns stand within the cella. The ceiling coffer of slabs is painted, and, in one row, surrounds the central dome, the centre of each coffer being carved with the pattern of a flower. The centre-focus is also expressed in the treatment of its floor, which is paved with marble slabs (fig.3.10a), their composition producing a beautiful, ornamental sun-flower pattern. The treatment of domes, such as the Pantheon's at Rome (built 120-124 AD), is on the same lines. They all reflect a strong centripetal treatment in space, form and decoration.

Similarly, a strong vertical axis is formed in the circular plan of the buildings in CCA. The treatment of the circular ceilings and roof in CCA is such as to produce a fitting setting for the central theme. For example, from the sectional plan of the roof of the *Wanchun Ting* 万春亭 (Pavilion of Ten Thousand Springs, rebuilt in 1536) in the Forbidden City, we can see that the treatment of both the structure and the decoration is centre-focused. The

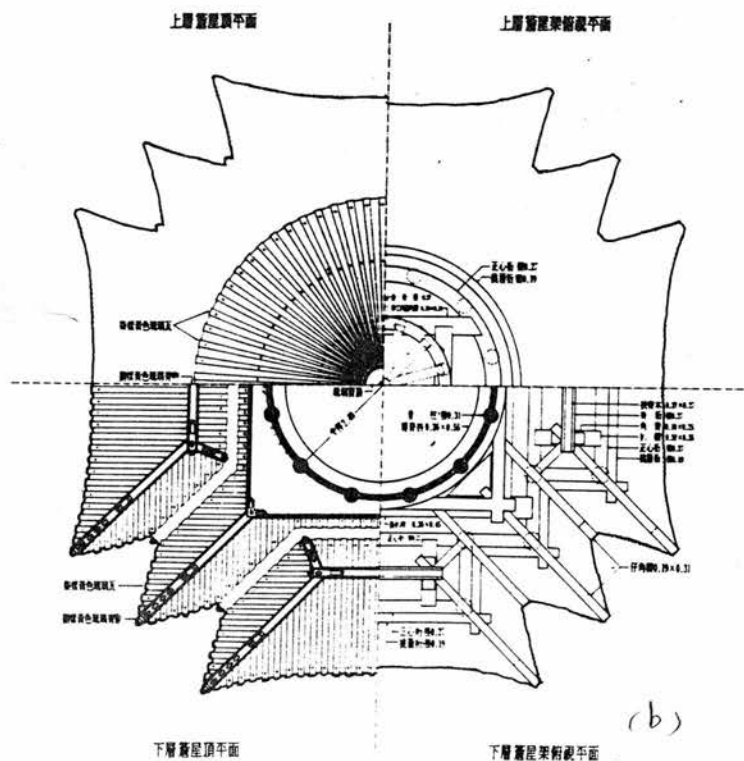
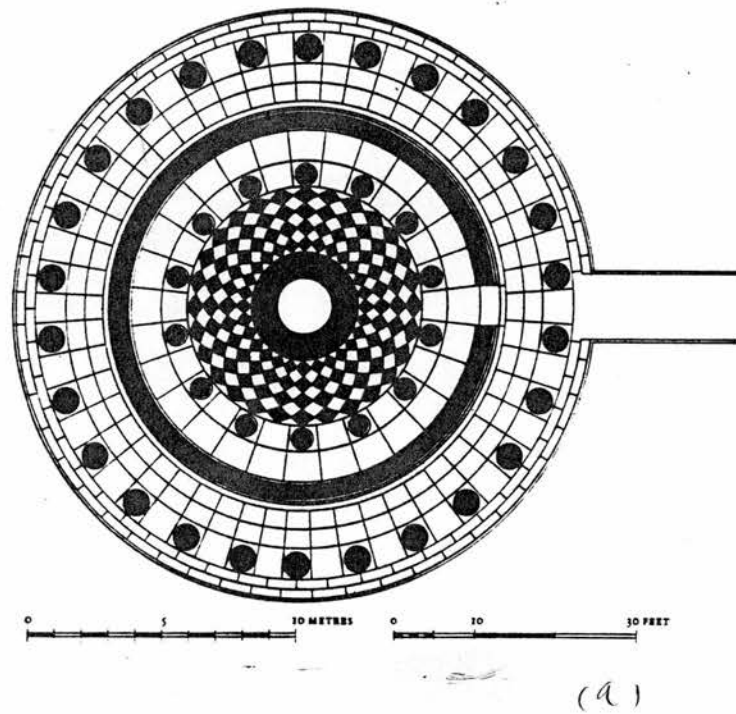


Figure 3.10. (a) Plan of Tholos at Epidauros and (b) the sectional plan of roof of the *Wanchun Ting* 万春亭 (Pavilion of Ten Thousand Springs) in the Forbidden City.

dome caisson, carved with a coiling dragon, is encircled by a group of bracket-sets, and the rafters all radiate from the centre (fig.3.10b). In accord with this treatment, the tile gutters which shed the rain sideways spread out from the centre. The rafters and tile gutters all radiate outwards from the centre.

Centripetality is an important characteristic in the treatment of space, form and decoration in both CWA and CCA. The Centre and axis are symbolic both of "Original" creation and the way of return from fragmentation to unity. The "vertical" at the Centre is also the path between Eternity and time, and the axis about which revolves the cyclic temporal life of traditional peoples.<sup>81</sup> Together with the high and central location and the horizontal axis, the centripetal theme in the Parthenon and the Taihe Dian represents the image of the Sacred Mountain, the centre of the world. This Sacred Mountain is regarded as a real mountain, with both horizontal and vertical axes going through its centre. It is like a pyramid and its top reaches heaven. The treatments of high and central location, the horizontal and vertical axis and the centripetal theme, are all derived from the idea of this Sacred Mountain.

The Parthenon was not only a Centre for the Athenians, but also for people in all the colonial states of the federation. It was one of the biggest temples in the Greek world. Similarly, the Taihe Dian was the biggest building in China. Apart from the three features just discussed, both buildings, which are most important Centres, are distinguished by their location, mass, structure and materials.

Compared with Greek temple architecture, CCA had a long history of producing centred and cosmologically orientated buildings and cities. Since the *Eastern Zhou* centred and cosmosised buildings have been commonplace in China. This was recorded by the book *Kaogong Ji* 考工記. But this was not so in Greece. In the case of the Parthenon, so far it has been difficult to find any document from ancient Classical Greece to support our hypothesis that the notion of a Centre was expressed in the temple. We have had to rely on analysis of

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<sup>81</sup> Wilson, C.B. "Building a Microcosm," in *Shadow: the newsletter of the Traditional Cosmology Society*, Vol.3 No.1, Edinburgh, 1986), p10.



the architectural treatment. Vitruvius, in his *De Architectura*, mentioned the origins of the Greek Orders, but not the cosmic function of the temples; nor did the later scholars of CWA. Mircea Eliade discussed the notion of a Centre in traditional societies in Asia and in the Indo-European world. According to the traditional view in the West, Greek temple architecture does not express the cosmic context. However, this does not mean that the Parthenon can not be interpreted in the same way as we interpret the Taihe Dian. In fact, the similarities of architectural treatment in the Parthenon and the Taihe Dian are evidence that similar significance is to be attached to both buildings. Independent evidence to support the notion of the Parthenon's being centred and cosmosised is lacking. It is clear that further investigation is needed in the case of the Greek temples.

### **3.3 Conclusion**

In a traditional society, according to Mircea Eliade's generalisation, every temple, palace or city is a Sacred Mountain which is regarded as a Centre. It is a meeting point of the three cosmic regions, of Heaven, Earth and Hell. The Parthenon and the Taihe Dian were each built as such a Centre. The high and central location, the horizontal axis, and the centripetal theme, three important features of both buildings, express the notion of a Centre. We find that:

Firstly, the location of the Parthenon is centred, and that it is on the top of the sacred hill. This signifies that it, the Centre, is situated on the summit of the Cosmic Mountain and at the centre of the world. Similarly, the Taihe Dian rests upon a three-tiered terrace and is located at the centre of the palace and the city. It means that the Taihe Dian is situated upon the highest and the most central place in the world. The cosmic mountain is shaped like a real mountain whose peak touches heaven. Above, where the heavens and the earth are reunited, is the 'centre of the world'. This cosmic mountain may be identified with a real

mountain, but it is always placed at the centre of the world.<sup>82</sup> Both buildings are regarded as a Sacred Mountain, and a Centre. The high and central location here show that both the buildings are Centres in their own cultural world.

Secondly, there is a strong horizontal axis running through the Parthenon and through the Taihe Dian. The horizontal axis is the way towards the centre of the world. In the Parthenon, the axis is emphasised by a narrow and longitudinal interior space. All the important features of the buildings are placed upon the axis. Through the doorway the axis radiates outwards. In the case of the Taihe Dian the horizontal axis is also formed by a series of spatial sequences. All important halls and courtyards in the palace city stand upon the axis, for standing upon the axis means that they are on the line towards the centre of the world. Following the large steps on the horizontal axis, one climbs the hill, the terrace and platform, passes a series of gate-houses, and eventually arrives at the interior space of the building, and at the centre of the world.

Finally, in addition to high and central location, and the horizontal axis, the centripetal theme in the Parthenon and the Taihe Dian also expresses the notion of a Centre. Standing at the centre of the cella and upon the horizontal axis of the Parthenon, one can see that everything in the room is facing the centre. In the case of the Taihe Dian, the *Ming* 明 emperor, seated on the throne which was placed at the centre of the hall, saw that everything in the hall was facing him, and approaching him, though motionlessly. Where the vertical axis and the horizontal axis of the buildings meet is found the centre of the world.

The hypothesis that the notion of a Centre is expressed by the above three major features of both CWA and CCA offers an interpretation of the meaning of these architectural devices and an interpretation of their origins. As we have seen, the business of providing a central location for the Taihe Dian was taken more seriously than was that of providing one for the Parthenon. The arrangement of the axes in the exterior spaces of the Parthenon

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<sup>82</sup> Eliade, Mircea, *Symbolism, the Sacred, and the Arts*, (edited by Diane Apostolos-Cappadona), (Crossroad, New York, 1986), p122.

and of the Taihe Dian is different. The axis in the Parthenon is formed by the temple, whereas the axis in the Taihe Dian is only a section of a continuous axis which goes through the palace and the city. The open square on the Acropolis differs from the courtyard of the Taihe Dian. These things reflect differences in the understanding of the notion of the Centre in the two cultures, and also illustrate differences in style. The three architectural features in both CWA and CCA have to do with the notion of the Centre; and this shows that the buildings are Centres. There is a relationship between these architectural treatments and the cosmic order. Following this train of thought, we are going to examine the treatment of interior space in both the buildings, and discuss its meaning.

## **CHAPTER IV**

# **THE PARTHENON AND THE TAIHE DIAN AS SACRED SPACES**

The Parthenon and the Taihe Dian are Centres. As we showed in Chapter III, the location, the horizontal axis and the centripetal theme signify that the buildings are the Sacred Mountain which is situated at the most central and the highest place in the world. Then, as we have seen in Chapter II, the interior space in the Parthenon and in the Taihe Dian is an enclosed and ordered space. Placed upon a platform, enclosed by a massive wall and roof, it is a cuboid space and has a horizontal axis running through its centre. What does this enclosed and ordered space mean in both buildings? In this chapter, we are going to examine the treatment of the interior space in both the Parthenon and the Taihe Dian, and discuss the meaning of the treatment. We shall show that the treatment of the interior space in each building is associated with a representation of the Sacred Space.

## **4.1 The enclosed and ordered space in the Parthenon and in the Taihe Dian**

### **4.1.1 An enclosed space**

We have seen in Chapter II that the spatial forms of the interior spaces in the Parthenon and in the Taihe Dian are quite similar. They are enclosed and cuboid spaces. This characteristic can be found in most examples of both CWA and CCA. From figure 4.1, we see that a common feature of the plans of Greek temples is that, no matter how different these plans are in shape and style - prostyle or peripheral, large or lesser - an enclosed space must be formed in the centre. This requirement has been met by the provision of a basic form of CWA, such as that of the temple shown in figure 4.1a. In this small prostyle temple, an enclosed interior space is formed by the massive walls on the four sides.

Similarly, looking at the plans in figure 4.2, we find the same feature in the buildings of CCA: the interior space enclosed by thick walls on the four sides. Judging by these plans from different places and periods, this characteristic has never been absent. The small three-bay hall, a basic form of CCA, shown in figure 4.2a - we may call it 'prostyle' - presents the same feature. Looking at the basic form of CWA and CCA (fig.4.1a&2a), we can see that:

1. An enclosed space is formed by massive walls and sloping roofs; and the doorway is the only link with the outside.
2. There is a portico in front of the entrance. The gallery of the portico acts as a transitional space between the interior and the exterior.

The Parthenon is composed of two prostyle temples (fig.4.3). As we have shown in Chapter II, the eastern cella is isolated by means of a balustrade; a two-tiered gallery runs round the room; and two rows of Doric columns, one upon another, supporting the coffered

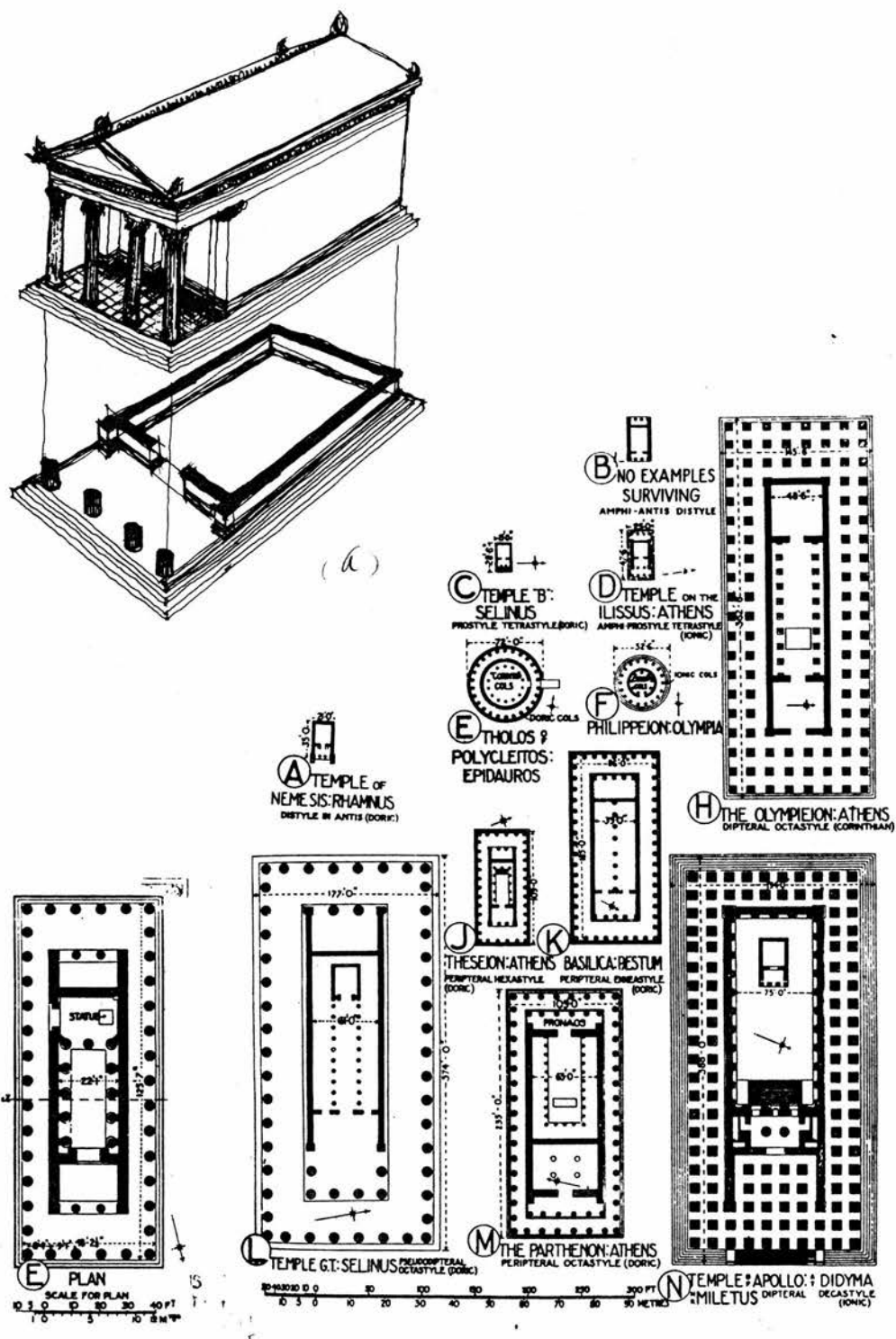


Figure 4.1. Plans of Greek temples and (a) a three-bay prostyle temple.



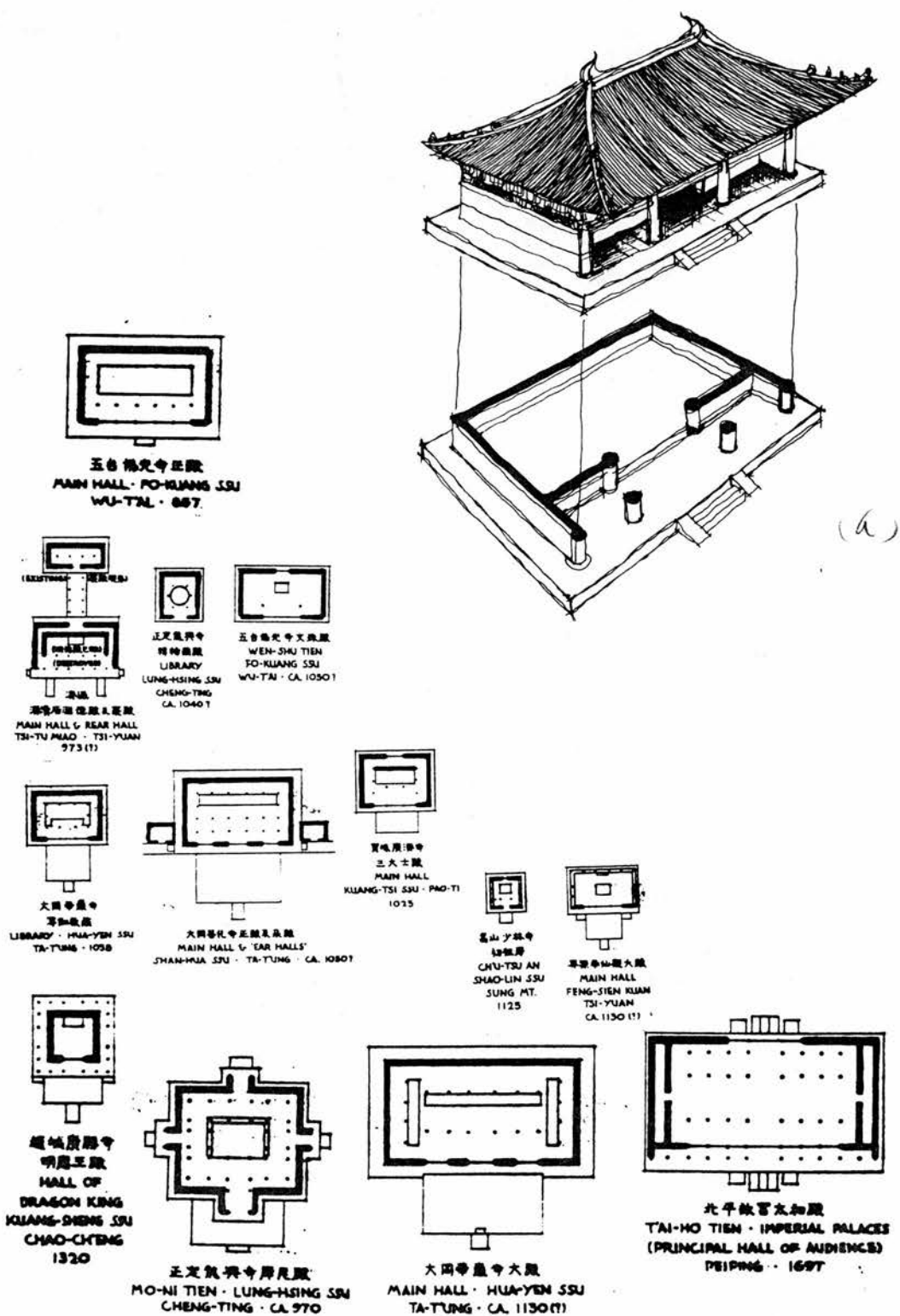


Figure 4.2. Plans of Chinese temples and palaces and (a) a three-bay prostyle temple.

ceiling, divide the room vertically. Both the eastern cella and western chamber are encircled by massive walls and a ceiling. The cella is composed of one broad nave with two smaller naves on each side, and a room which should contain the statue and be surrounded with a peristyle (fig.4.4a). The west chamber is a high and relatively narrow room. Both spaces are encircled by massive walls and colonnades on four sides (fig.4.4b). There are no windows in the walls. The big doorways in the eastern cella and in the western chamber thus become the only connection with the outside. The colonnades encircle the two interior spaces with an ambulatory (fig.4.4c). The portico and the ambulatory work as the transitional space between the closed interior space and the exterior.

Let us look at the plan of the Taihe Dian (fig 4.5). As with the Parthenon, there is inside the Taihe Dian an esoteric space encircled by massive walls. It is an enclosed space. There are no windows in the walls on the rear and the two flanks. The portico on the front elevation is a place of transition between the closed interior and the courtyard. In the original plan of the Taihe Dian of the Ming dynasty, the interior space was encircled by an ambulatory (fig.2.13).

The exterior space of the Taihe Dian, the Outer Court, is also an enclosed space. The spatial arrangement of the interior of the grand hall is extended to that of the courtyard. Looking at the plan of the Outer Court of the Forbidden City (fig.4.6) and comparing it with the spatial form of the whole palace (fig.2.11), we find that the latter seems to be an imitation of the former in the treatment of space. Both of them are enclosed spaces, rectangular in plan, with their main entrances to the south, and a corner-tower at each of the four corners. In both spaces the Taihe Dian stands at the centre.

The front courtyard of the Taihe Dian is a rectangular one, covering an area of over 30,000 sq.m., and is the largest courtyard in the Forbidden City (fig.4.6). It is formed by groups of doorways and low galleries, with a corner-tower at each of the outer corners. To the east and west, half way along, there are two symmetrical pavilions balancing each other, the *Hongyi Ge* 弘義閣 (the Pavilion of Glorifying Righteousness) and the *Tiren Ge* 體仁閣

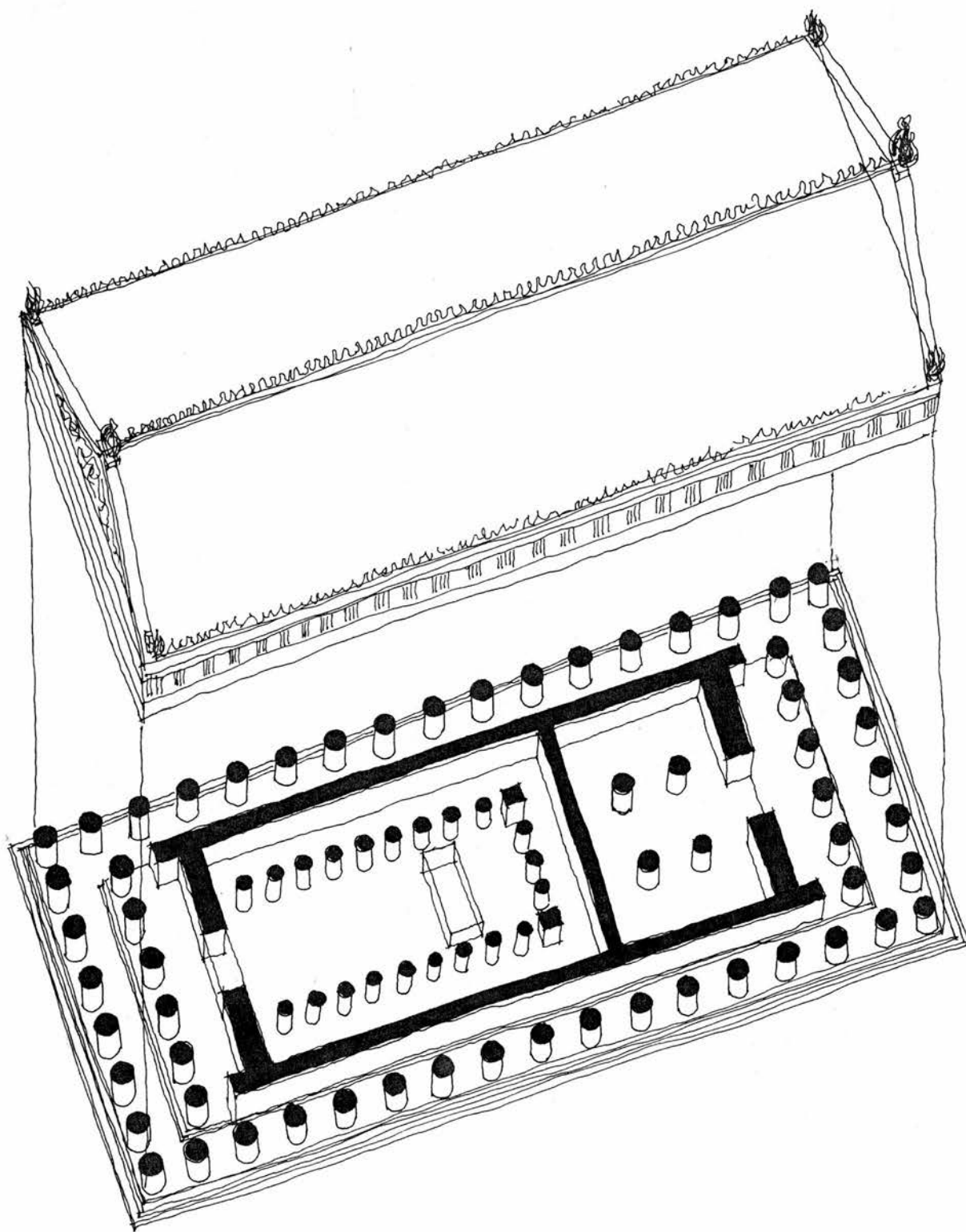


Figure 4.3. Arrangement of the interior space of the Parthenon

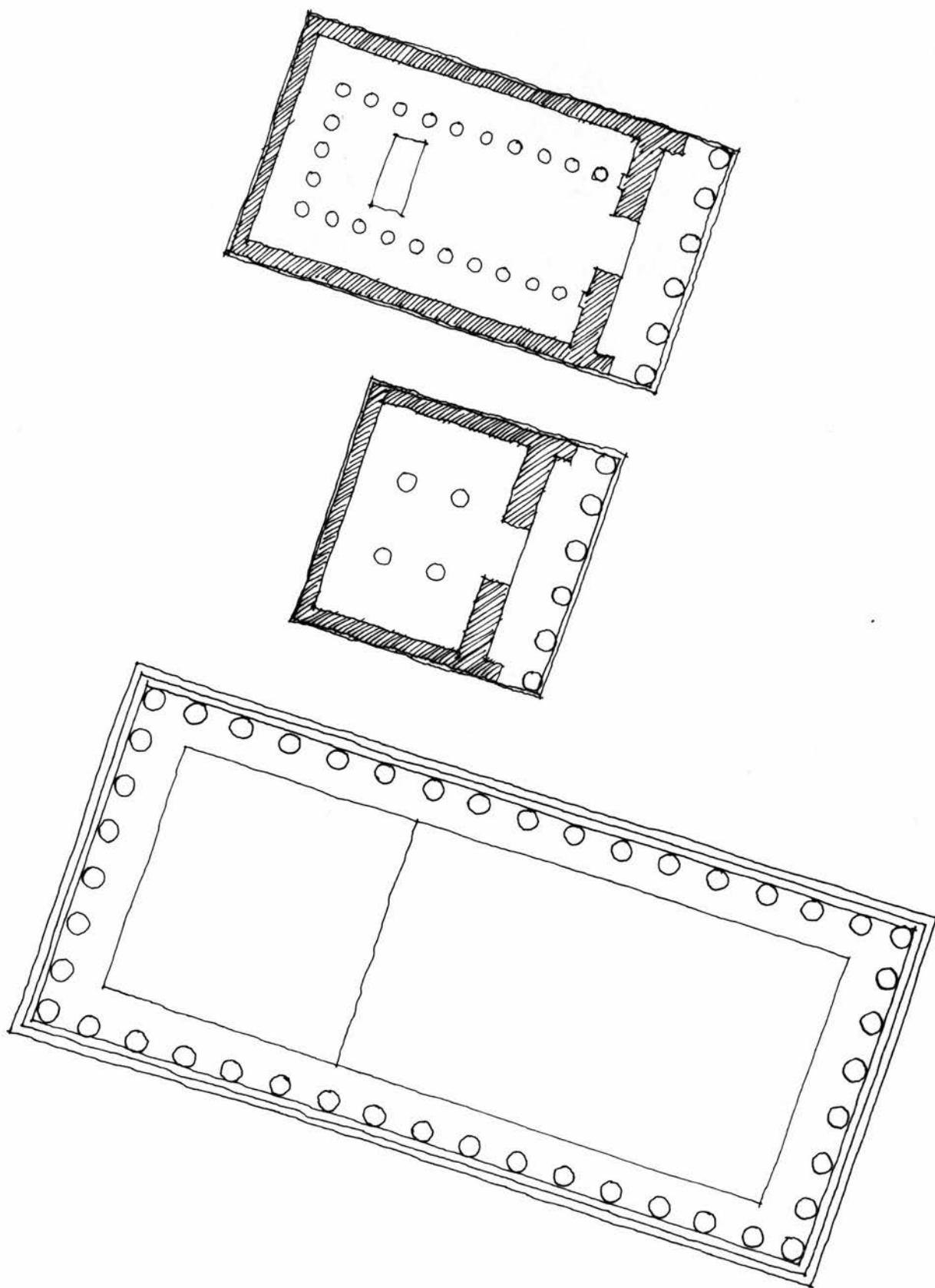


Figure 4.4. The Parthenon consisted of two prostyle temples, (a) plan of the ambulatory, (b) plan of the western chamber and (c) plan of the eastern cella.

(the Pavilion of Manifest Benevolence). The point of intersection of the horizontal axis of the two pavilions and that of the Taihe Dian is the centre of the courtyard. Opposite the Taihe Dian is the principal gate-house called the *Taihe Men* 太極門 (the Gate of Supreme Harmony), measuring nine bays wide and four bays deep, the grandest of all the gateways in the palace. The *Taihe Men* 太極門 is flanked by the *Zhaode Men* 昭德門 (the Gate of Luminous Virtue) and the *Zhengdu Men* 貞度門 (the Gate of Correct Conduct) on the left and right. Symmetrically arranged also are two gate-houses, the *Zhongyou Men* 中右門 (the Gate of Central Right) and the *Zhonyzuo Men* 中左門 (the Gate of Central Left), flanking the Taihe Dian. A massive red wall was built between the two flanking gateways and the hall (originally a gallery built there during the *Ming* 明). Behind the Taihe Dian there is also a rectangular courtyard formed by the *Baohe Dian* 保極殿, with four flanking gateways and low galleries. Corresponding to the arrangement in the front courtyard of the Taihe Dian, there are two corner-towers at the two rear corners. The difference between the enclosed space in the Taihe Dian and that in the front courtyard is that the former is an enclosed space which has a large roof, and that the latter is one without a roof.

#### 4.1.2 An ordered space

Normally, there are three kinds of plan in both Greek temple architecture and CCA - circular, square and rectangular. In Greek temple architecture we find that only a few buildings are of circular or square plan, and that most of them are rectangular. This is also the case in CCA.

Figure 4.7 illustrates four Greek temple designs: the *erstyle*, *peripteral*, *amphiprostyle* and *prostyle*. The interior space of these types of Greek temple is ordered. Figure 4.8a shows a circular tholos near Epidaurus (built about 360 BC). It is surrounded by three steps, and has a diameter of 21.82 m. A silent characteristic of this circular space is a sloping causeway running from the entrance, which faces east. Twenty-six columns form an open ambulatory with a massive wall, which encloses the space. A strong vertical axis goes

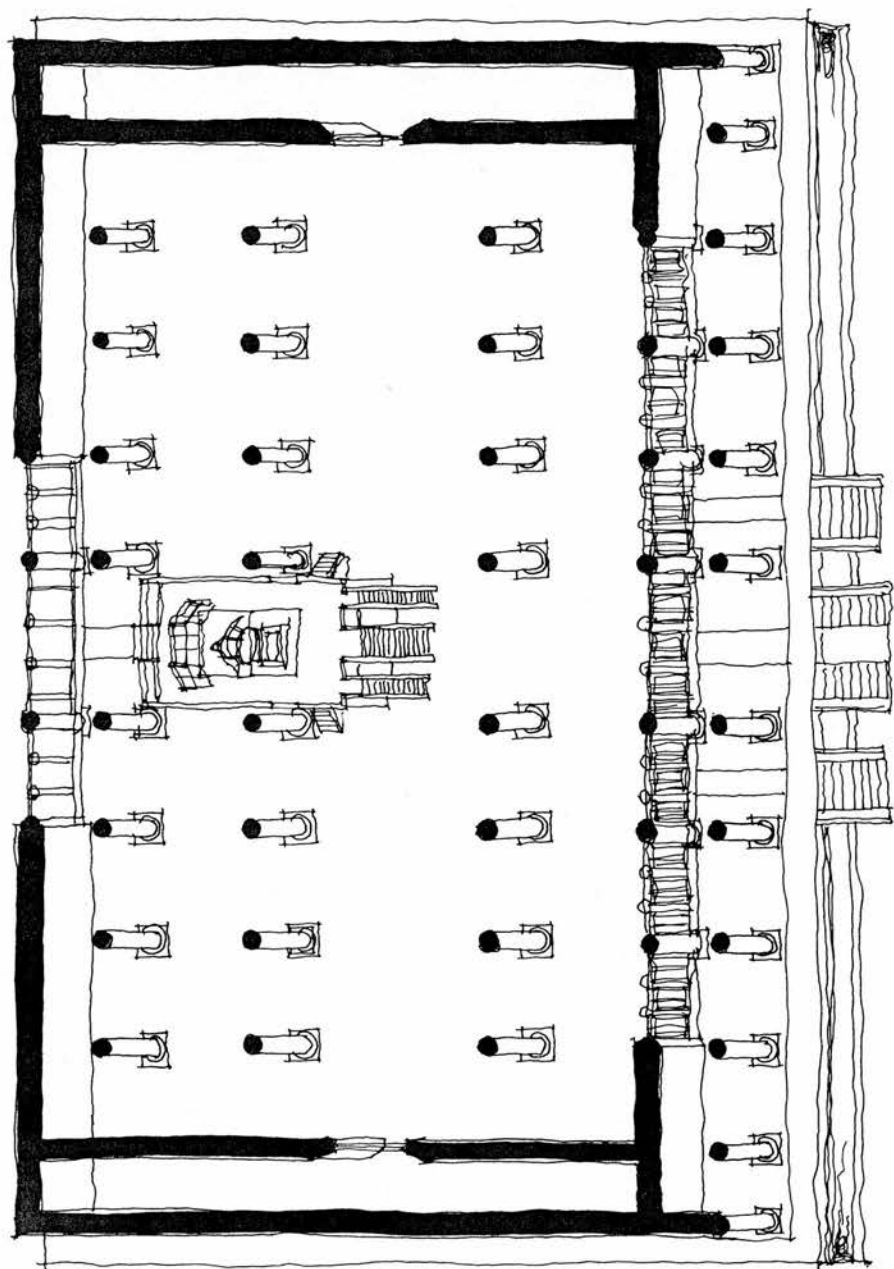


Figure 4.5. Arrangement of the interior space of the Taihe Dian.



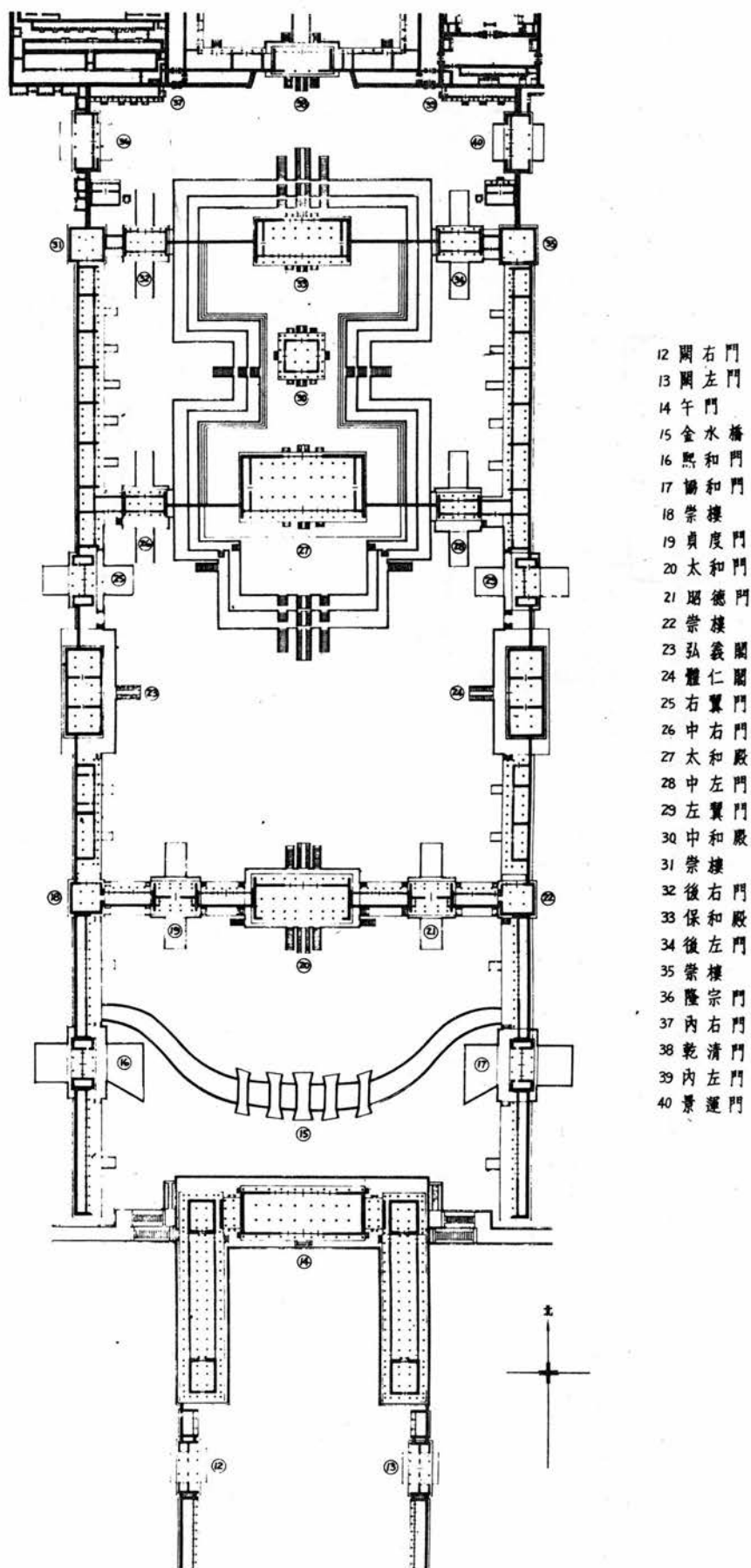


Figure 4.6. Plan of the front courtyard of the Taihe Dian (from Liu, D.Z., 1980).

through the centre of this space and the dome. This characteristic has been found in some later examples, such as the Pantheon at Rome (fig.4.8b). The portico forms an imposing entrance to the circular temple, and the main orientation of the temple is indicated by the position of the entrance and portico.

Figure 4.9 shows one of the finest examples of CCA, the *Qinian Dian* 祈年殿, the main hall of the *Tiantan Temple* 天壇 (Temple of Heaven) in Beijing, a triple-eaved circular hall. It stands inside a square courtyard on the top of a round three-tiered marble terrace. Inside there is a big dome which is supported by two concentric rings of 12 pillars each and four large centrally-located columns. As in the tholos near Epidauros, there is a vertical axis through the centre of the interior space and the dome.

It is uncertain why there are no square plans found in extant Greek temples. The majority of Greek temples are of a rectangular plan. It is also the case in CCA. In China, the square plan is occasionally used; for example, in the case of the *Zhonghe Dian* 中齋殿 (fig.1.21), the grand hall behind the *Taihe Dian*. Most buildings in both CWA and CCA are built to a rectangular plan, and this is the case with the Parthenon and the *Taihe Dian*. The eastern cella and western chamber of the Parthenon are cuboid spaces, and they are on the same axis, back to back. The shape of the eastern cella of the Parthenon is long and narrow; and shallow and high, seen from the main entrances (fig.4.10b). In the *Taihe Dian* the shape of the interior is shallow and broad, seen from the main entrances (fig.4.10a). Corresponding with this difference, the main elevations in CWA are on the gable-end, which is narrow and high; while those in CCA are on the broad side.

The horizontal axis of the Parthenon follows the long side (west-east axis), and that of the *Taihe Dian* is on the short side (north-south axis). The entrances in the Parthenon are placed on the two gable-ends, but in the *Taihe Dian* they are placed on the two long sides (fig.3.3). As to the entrances, the porticos of the Parthenon are on the gable-ends, and the *Taihe Dian*'s is on the long side (front).

Comparing the interior spaces of the Parthenon and of the *Taihe Dian*, we find that:

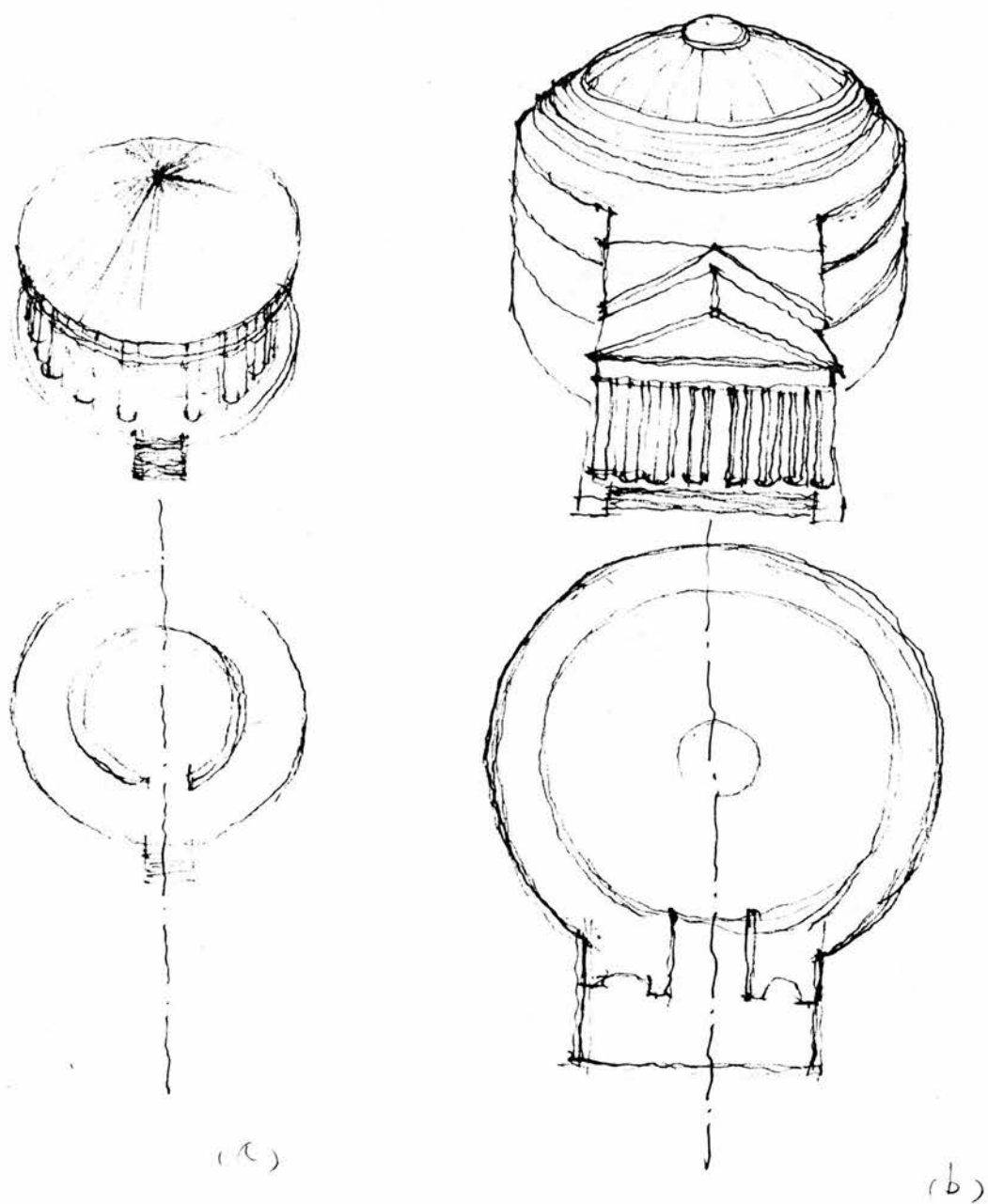


Figure 4.8. (a) The tholos near Epidauros and (b) The Pantheon in Rome.

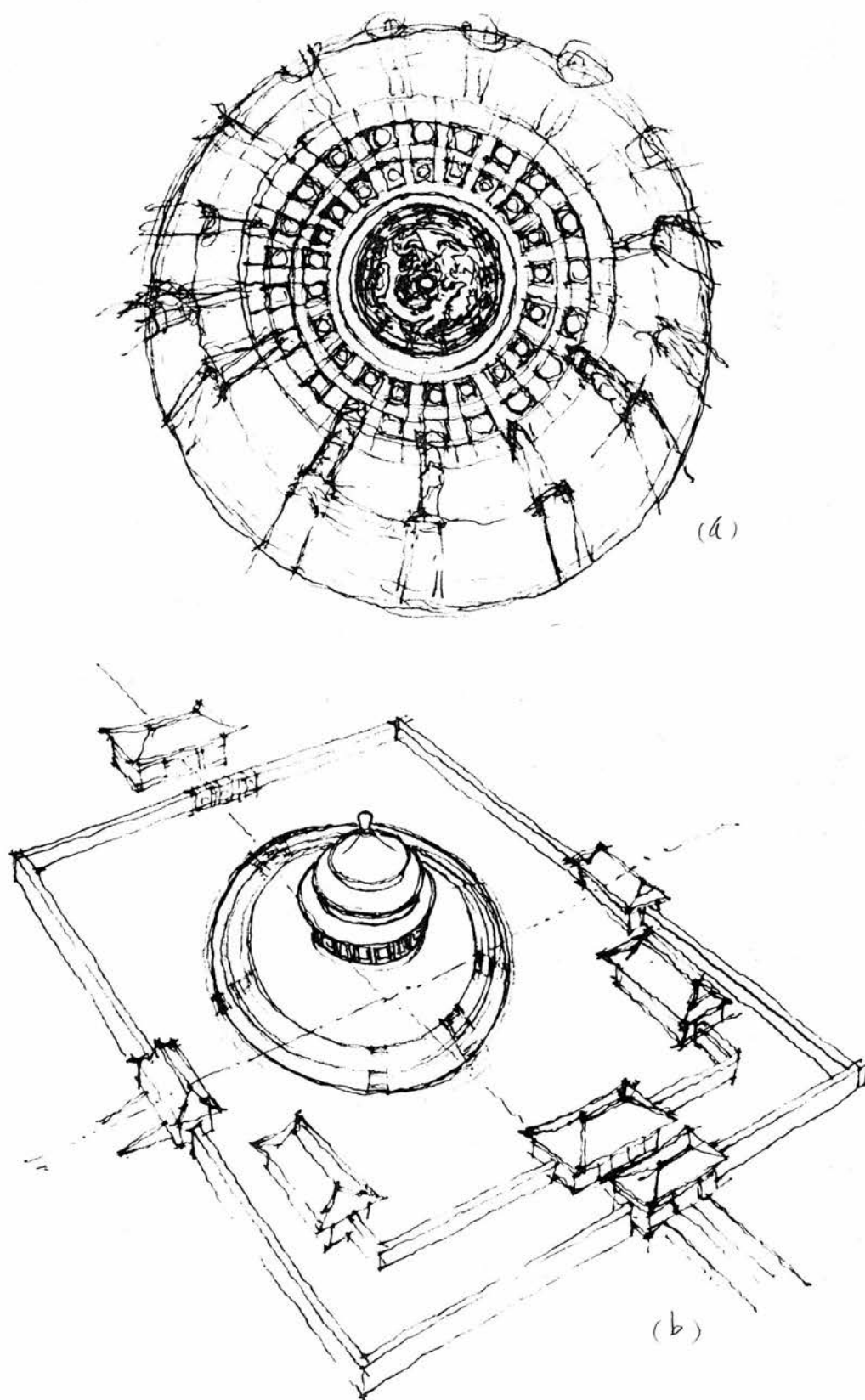
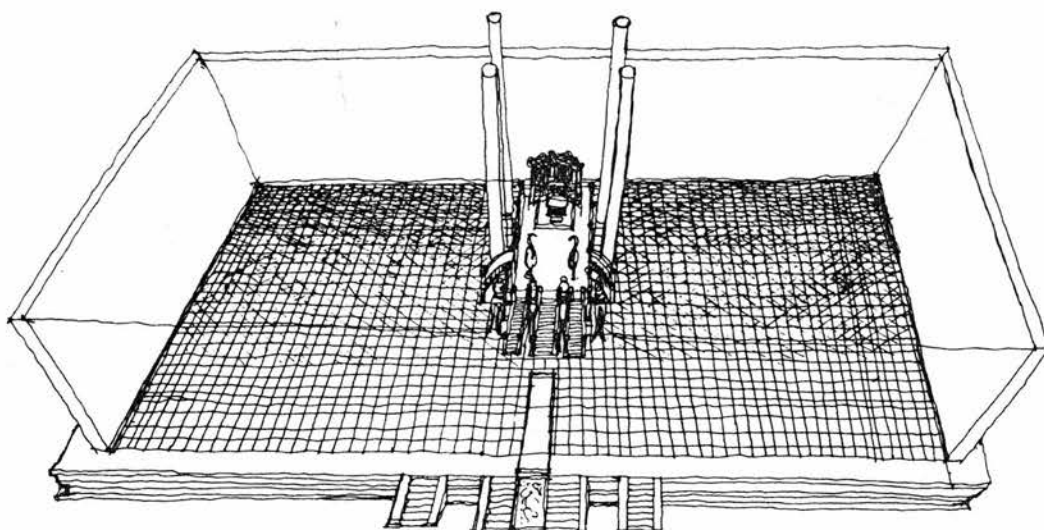
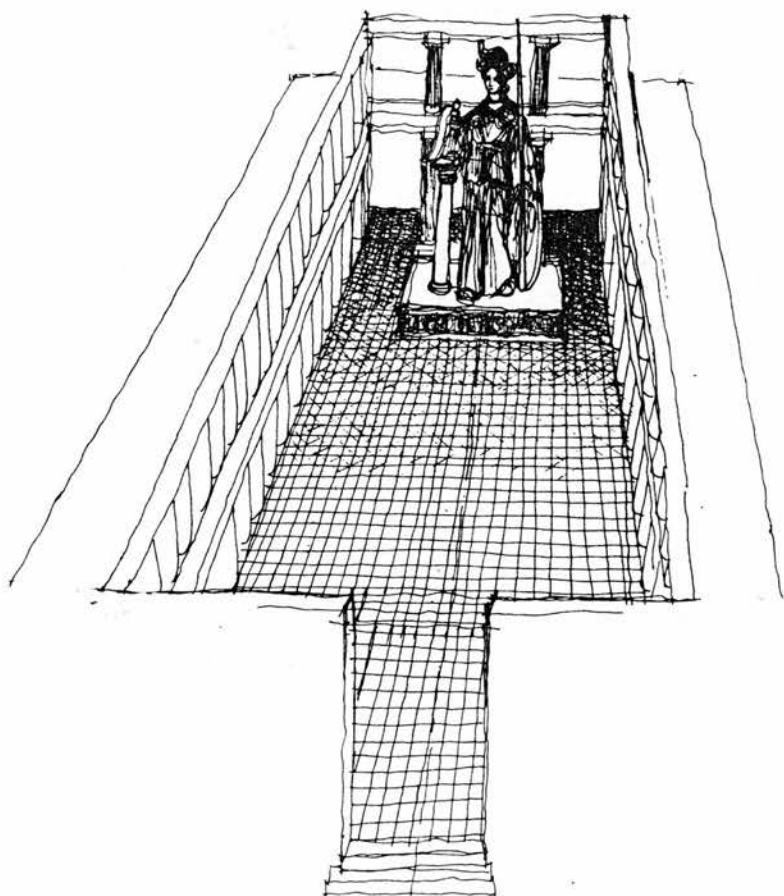


Figure 4.9. (a) Caisson of the *Qianian Dian* 祈年殿, the main hall of the *Tiantan Temple* 天坛 (Temple of Heaven) in Beijing.



(a)



(b)

Figure 4.10. Design of interior space of (a) the Taihe Dian and (b) the Parthenon.

**Parthenon:**

1. The interior spaces are encircled by the roofs and walls, which separate them from the outside world.
2. There are no windows in the walls.
3. The shape of the interior space is cuboid.
4. There is a portico in front of the doorway, with an axis through the centre of the space.

**Taihe Dian:**

1. The interior space is encircled by the roofs and walls, which separate it from the outside world. It is an enclosed space.
2. There are no windows in the walls on the rear and flanks.
3. The interior is a cuboid space.
4. There is a portico in front of the doorway, with an axis through the centre of the space.

In the eastern cella the central space is encircled by a two-tiered colonnade. This treatment becomes an important characteristic of CWA later. The interior of the Taihe Dian is a simple cuboid space. Twenty-four columns support the ceiling, and the central space of the interior is emphasised by six gilt columns and the caisson. But the treatment of the interior space of the Taihe Dian is extended to the exterior, the front courtyard .

## **4.2 Expression of the notion of the Sacred Space in CWA and CCA**

As we said earlier, the interior space of the Parthenon and of the Taihe Dian is an enclosed and ordered space. A horizontal axis goes through its centre, and the doorways are placed upon the axis. Why is there such an enclosed and ordered space in both Greek temples and Chinese palaces? What does this treatment mean. Here we began to introduce the notion of a sacred space and suggest that the enclosed and ordered space in classical



buildings expresses that the interior space is a Sacred Space. This hypothesis gives an explanation of the treatment of the interior space, and of its creation in both CCA and CWA.

#### 4.2.1 The Notion of the Sacred Space

For a religious man, space is not homogeneous. He experiences interruptions, breaks in it. Some parts of space are qualitatively different from others.<sup>83</sup> There are two different spaces: the sacred and the profane. Mircea Eliade writes:

There is, then a sacred space, and hence a strong, significant space; there are other spaces that are not sacred and so are without structure or consistency, amorphous. Nor is this all. For religious man, this spatial nonhomogeneity finds expression in the experience of an opposition between space that is sacred - the only real and really existing space - and all other space, the formless expanse surrounding it.<sup>84</sup>

According to Mircea Eliade's generalisation, first of all, a Sacred Space is a territory of the gods, which belongs only to deities and ancestors. We are concerned with a sacred space: that is to say, a territory entirely different from the surrounding cosmic environment, a zone which is singled out and is detached from profane space.<sup>85</sup> Secondly, a Sacred Space is separated from the profane. "Thus we find at the origin of all types of sanctuary space, from the most modest to the most sumptuous, the idea of sacred space encircled by an enormous, chaotic, little-known zone of profane space."<sup>86</sup> Architectural spaces transform themselves into sacred spaces simply because the sacred is manifested there:

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<sup>83</sup> Eliade, Mircea, *The Sacred & the Profane: the Nature of Religion*, (transl. Willard. R. Trask), (Harcourt Brace Jovanovich, New York & London, 1959), p20.

<sup>84</sup> Ibid.

<sup>85</sup> Eliade, Mircea, *Symbolism, the Sacred, and the Arts*, (edited by Diane Apostolos-Cappadona), (Crossroad, New York, 1986), p107.

<sup>86</sup> Ibid.

The answer may seem to us too elementary, almost infantile. It is in effect quite difficult to understand. A manifestation of the Sacred, a hierophany, bears for the consciousness of archaic peoples a rupture in the homogeneity of space. In more familiar terms, we would say that the manifestation of the Sacred in any space whatsoever implies for one who believes in the authenticity of this hierophany the presence of transcendent reality.<sup>87</sup>

The Sacred is that something which is altogether other than the profane, so that the Sacred Space and the profane are two different worlds. The Sacred Space does not belong to the profane world. It is the real par excellence. Here a manifestation of the Sacred is always a revelation of being.<sup>88</sup>

Finally, the Sacred Space is a real space. It may be an architectural space. "In mythical geography, Sacred Space is the essentially real space, for in the archaic world the myth alone is real."<sup>89</sup> It is in such a space that one has direct contact with the sacred:

In archaic and traditional societies, the surrounding world is conceived of as a microcosm. At the limits of this closed world begins the domain of the unknown, of the formless. On this side there is ordered - because inhabited and organised - space; on the other, outside this familiar space, there is the unknown and dangerous region of the demons, the ghosts, the dead and of foreigners - in a word, chaos or death or night. This image of an inhabited microcosm, surrounded by desert regions regarded as a chaos or a kingdom of the dead, has survived even in highly evolved civilisations such as those of China, Mesopotamia and Egypt.<sup>90</sup>

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<sup>87</sup> Ibid.

<sup>88</sup> Ibid.

<sup>89</sup> Eliade, Mircea, *Images and Symbols: Studies in Religious Symbolism*, (transl. Willard. R. Trask), (Harvill Press, London, 1961), p40.

<sup>90</sup> Ibid.

Here, in the sacred enclosure, communication with the gods is made possible. Outside this familiar space there is the unknown and dangerous region. Within the Sacred Space precincts the profane world is transcended. The sacred space is essentially a real space:

It tells of manifestations of the only indubitable reality - the sacred. It is in such a space that one has direct contact with the sacred - whether this be materialised in certain objects (tchuringas, representations of the divinity, etc.) or manifested in the hiero-cosmic symbols (the Pillar of the world, the Cosmic Tree, etc.). In cultures that have the conception of three cosmic regions - those of Heaven, Earth and Hell - the 'centre' constitutes the point of intersection of those regions. It is here that the breakthrough on to another plane is possible and, at the same time, communication between the three regions.<sup>91</sup>

On the most archaic levels of culture this possibility of transcendence is expressed by various images of the opening. There must be a door to the world above, which symbolically opens to heaven. The temple constitutes an opening in an upward direction and ensures communication with the world of the gods.<sup>92</sup> To create a Sacred Space in those Asian civilisations is also to build one's universe, the ideal world or the pure land:

Associated with this transcendental schema was the realization that, although the whole world was the handiwork of the gods, its maximum potential sacredness was realizable at only a few points. Before territory could be inhabited, it had to be sacralized, that is cosmo-sized. Its consecration signified its 'reality' and, therefore, sanctioned its habitation; but its establishment as an imitation of a celestial archetype required its delimitation and orientation as a sacred territory within the continuum of profane space. This could be effected only in relation to a fixed point, namely the village, city, or territory of the particular group, whence the sacred habitabilities necessarily took birth (unsanctified, that is 'unreal' territory being uninhabitable), and whence they spread outwards in all directions. This central point, this focus of creative force, was thus quint-essentially sacred, and as such

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<sup>91</sup> Ibid, p37-38.

<sup>92</sup> Eliade, Mircea, *The Sacred & the Profane: the Nature of Religion*, (transl. Willard. R. Trask), (Harcourt Brace Jovanovich, New York & London, 1959), pp25-26.

the place where communication was likely to be effected most expeditiously between cosmic planes, between earth and heaven on the one hand, and between earth and the underworld on the other.<sup>93</sup>

Greek temples were built in sacred places, such as Athens, Olympia and Delphi. Those sacred places were the territory of gods and goddesses; Athena for Athens, Zeus for Olympia and Appolo for Delphi. Rituals and ceremonies were held in the sacred place, for there the Sacred could be contacted and communication between the three cosmic regions made possible. For instance, the celebration of Athena's birth-day was held on the sacred hill, the Arcropolis, and sacrifices were dedicated in the Parthenon. The interior space of Greek temples thus became a Sacred Space. Similarly, in China, the temples and palaces were built at sacred places. The Forbidden City, for instance, was such a sacred space. National rituals and ceremonies were held in the Taihe Dian and the front courtyard. The enclosed spaces in the Taihe Dian and the Forbidden City are Sacred.

#### **4.2.2 The Sacred Space is expressed by an interior space**

##### **An enclosed space, and the Sacred Space**

The interior space in the Parthenon and in the Taihe Dian is enclosed by thick walls on four sides; and the walls and roof separate the interior spaces from the outside world. This enclosed space is a Sacred Space, and it is conceived of as a microcosm which is cut off from the outside world.

In the early stages of Greek religion, worship centred on sacrificial altars, caves, small chapels or shrines. Temples did not appear until after the end of the Aegean civilisation,

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<sup>93</sup> Wheatley, Paul, *The Pivot of the Four Quarters*, (Edinburgh University Press, Edinburgh, 1971), p417.

when Greeks began to represent their deities by large statues.<sup>94</sup> The intention to build an enclosed interior space, apart from the outside world, is seen in primitive Greek temples. By the time of the building of the Temple 'A' at Prinias, around the seventh century BC, an enclosed space was formed by the sloping roof and massive wall. In the case of the eastern cella of the Parthenon, for example, the enclosed space was not built for habitation, but to form a Sacred Space, which is manifested as a Basilica, an enclosed cuboid space surrounded by a two-tiered gallery on three sides. Builders' understanding of a Sacred Space is expressed in the treatment of the interior spaces of the temples.

In China, the oldest extant building of CCA, the *Nanchan Temple* 南禪寺 (Southern Meditation Monastery), at *Wutai Shan* 五台山, *Shanxi* 山西 Province, shows the enclosed interior space formed by massive walls on four sides (fig.1.20b). Inside the building is an altar with Buddhist statues of the *Tang dynasty* 唐朝 (618-907). The interior space of the hall is a cuboid space, with a doorway on the south edge. Similarly, the interior space of the *Taihe Dian* is enclosed by the wall and roof. It is a closed microcosm. The builders' understanding of a Sacred Space was expressed in this way.

Enclosure here implies that the architectural space is a Sacred Space. Inside the building and outside are two different worlds. The doorway becomes the only link with the outside profane world. As Mircea Eliade writes:

The temple is a closed world; a microcosm of stone, but a closed microcosm. The 'world' of ancient cosmologies (Mesopotamia, India, China) was imagined as being like an enclosed vessel. The temple was the image of this world; its concrete model was the bubble of air or water, the 'cosmic egg.' One cannot enter into such a closed world, of course, except by a miracle. Indeed, the gates were considered a 'breach,' effected by magical means, into the cosmic mountain, i.e., into the temple.<sup>95</sup>

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<sup>94</sup> Fletcher, Banister, *Sir Banister Fletcher's a History of Architecture*, (the 17th revised edition, ed. R.A.Cordingley), (The Athlone Press, London, 1961), p90.

<sup>95</sup> Eliade, Mircea, *Symbolism, the Sacred, and the Arts*, (edited by Diane Apostolos-Cappadona), (Crossroad, New York, 1986), p137.



Compared with the interior space of earlier buildings, that of the Parthenon and the Taihe Dian is more luxurious and grand. As we have seen in Chapter II, to build such a large interior space had involved stretching the limits of both technique and materials for the builders of both buildings. The large space and the most distinguished decoration also show that they are important Sacred Spaces. The difference of the treatment of space, form and decoration in the interior space of the Parthenon and of the Taihe Dian represents a difference in the builders' understanding in the two cultures.

In CCA a closed space may enclose other closed spaces, such as courtyards. For instance, the Taihe Dian is located at the centre of the Outer Court, which is enclosed by lower galleries, gate-houses and corner towers. The Forbidden City is itself enclosed by brick city-walls, gate-houses and corner towers. As we have shown in Chapter II, the spatial arrangement of a courtyard is an extension of the treatment of an interior space, for its symmetry, axis and orientation are all an extension of an interior space. So it was that, in China, some important activities, such as the most important rituals, meetings and celebrations, took place in the courtyard.

The courtyard of the Taihe Dian (fig.4.11b), for instance, has an extension of the arrangement of the interior of the great hall. It is an enclosed space of rectangular plan, lying to the south of the hall, with its main entrance on the south side; and its north-south axis emphasised by the stone-paved Imperial Way which runs between the Taihe Dian and the Gate of Supreme Harmony. If a comparison were made between the treatment of the throne (fig.4.11a) and its platform in the interior space of the Taihe Dian, and the treatment of the Taihe Dian, we would find that the exterior format is a repetition of the interior one on a larger scale. Just as the throne (including the seated emperor) stands upon the gilt platform, so, standing upon the three-tiered marble terrace, the gigantic mass of the Taihe Dian dominates all the front courtyard. Even the treatment and decoration of the three-tiered marble terrace of the hall is an imitation of that of the platform inside the hall. In the front



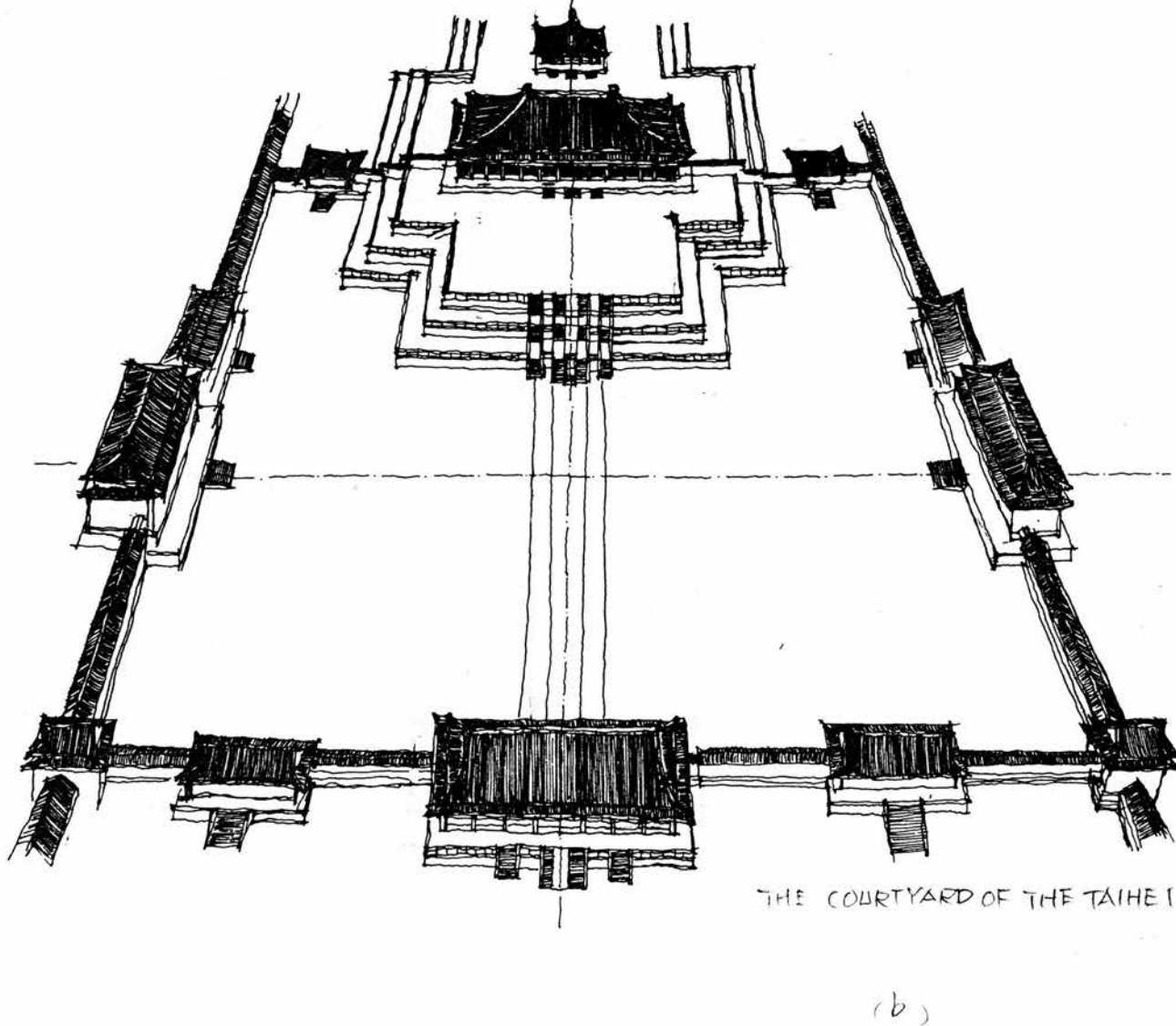
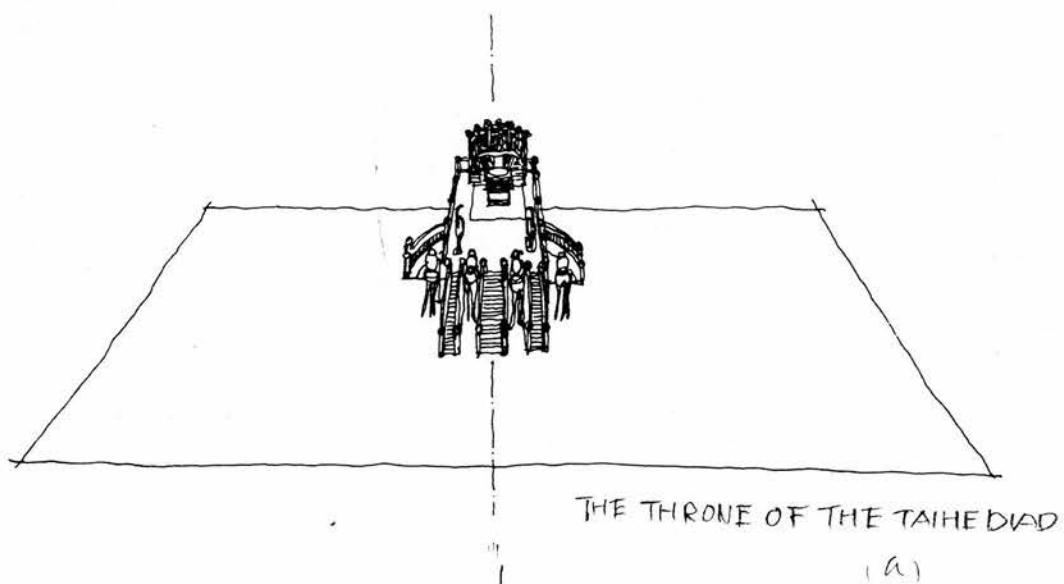


Figure 4.11. (a) The throne and (b) the front courtyard of the Taihe Dian.

courtyard, three steps lead upwards towards the hall; and in the hall, three steps again lead upwards toward the throne. Some sculptures placed in the interior are duplicated outside. For example, upon the platform of the throne are placed a pair of bronze cranes; while again, a pair of bronze cranes appear on the front apron of the topmost terrace of the Taihe Dian.

The walls and the gate-houses between each closed space are also the 'walls' and the 'gate-houses' between the different Sacred Spaces. The walls of the Taihe Dian, the Outer Court and the palace not only separate two different spaces, the interior and the exterior, but also divide the Sacred Spaces into different classes. For instance, the interior of the Taihe Dian was a 'forbidden area', which belonged only to the emperor, and was the most sacred space in the palace. This interior space was strictly reserved for use on only the most important occasions, such as the celebrations held on New Year's Day.<sup>96</sup> During the *Ming dynasty* 明朝 (1363 - 1644) and the *Qing dynasty* 清朝 (1644-1911) entry to this interior space was forbidden to all except the emperor and a few high-ranking ministers, and was granted even to them only during a ceremony. The architectural treatment of the interior space of the Taihe Dian shows that it is the most sacred space in the palace city.

The enclosed space is an essential characteristic of both CWA and CCA. In an enclosed space, the Sacred Space, time becomes static. There are no mountains and rivers, summer and winter, wind and rain, day and night. This we find in both the Parthenon and the Taihe Dian.

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96 Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p58.

## **An ordered space and the Sacred Space**

As we said earlier, the Sacred Space is different from the profane. This Sacred Space is ordered, it is an architectural space, and there are four orientations with a centre. This characteristic is found in the treatment of the interior space of both the Parthenon and the Taihe Dian.

There are three major types of interior space in both CWA and CCA, the cuboid, the cubic and the cylindrical. Each of them is symmetrical in plan, and is on an axis. These three types of interior space express people's understanding of a Sacred Space. A Sacred Space is an ordered space. Profane space, on the contrary, is homogeneous and natural; and no break qualitatively differentiates the various parts of its mass.<sup>97</sup>

### **The four orientations of a Sacred Space**

There are four orientations in the interior spaces of the Parthenon and of the Taihe Dian, east, south, west and north, which are indicated by the walls on the four sides. In both cases the most important orientation is marked by the doorway or the portico. We say that the Taihe Dian has a north-south one, because the entrances and porticoes of the former are on the east and west sides, and those of the latter are on the north and south sides. People distinguish the orientations in an interior space by the location of the walls.

In China most important buildings have a north-south orientation, and doorways are placed on the south side of an interior space. The chief buildings, such as the Taihe Dian, are all located on the north side of their courtyards and face south. In the interior of the Taihe Dian, the gilt throne is located near the end of the north side and faces south.

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<sup>97</sup> Eliade, Mircea, *The Sacred & the Profane: the Nature of Religion*, (transl. Willard. R. Trask), (Harcourt Brace Jovanovich, New York & London, 1959), p22.

Corresponding to this, the main entrances are placed on the south side. The four orientations are marked by the four walls of a cuboid or a cubic space in both CWA and CCA.

Compared with a cubic space, a cuboid space not only marks the orientation by the four walls, but also emphasises the difference in importance of each orientation. For instance, the east and west orientations are emphasised as the most important ones in the cella of the Parthenon, for the portico and entrance are placed on the east side, the short side. In the Taihe Dian, the portico and the main entrance are placed on the south side, but they are on the long side. This is one of the most important considerations in CWA and CCA.

While the orientations of an interior space are marked only by the four walls in a building of rectangular and square plan, the location of the doorway in a circular building reveals one of its orientations. For instance, the entrance to the *Qinian Dian* 祈年殿, is on the south side. The great hall itself, with its marble terrace, is located inside a rectangular courtyard (fig.4.9b). The walls of the square courtyard correspond to the four compass-points. Again, the main entrance to the courtyard is placed on the south side. The four orientations of the courtyard are marked by the walls and gate-houses.

The orientation is an important feature of an interior space in both the Parthenon and the Taihe Dian. In the Parthenon, the cult-statue of Athena stood at the west end of the cella and faced the east. In the Taihe Dian the emperor sat on the throne which is at the centre of the space and faced towards the south where the most important gate-ways of the hall and the courtyards were placed.

In CCA the four orientations of an interior space are also marked by the use of symbolic creatures and decorative colours. The four gods of direction are represented on the buildings. They are: the green dragon for the east (top left), the white tiger for the north (top right), and the red bird for the south (bottom left). The four gods are represented on the walls in different orientations. The four orientations are also indicated by colours: green for the east, red for the south, white for the west, and black for the north. Figure 4.12 shows the four symbolic animal designs on the eave-tile of the *Han dynasty* 漢朝 (206BC-AD263).



a



b



c



d

Figure 4.12. The four gods of direction, (a) the green dragon for east, (b) the white tiger for the west, (c) the red birds for the south and (d) the black warrior for the north.

In the Taihe Dian, the orientation of the interior space is exactly the same as that of the exterior one; and the entrances of the hall face exactly north and south. It means that the four orientations of the Sacred Space in the hall exactly correspond to those of the outside world. In Chinese palace architecture, from the earliest stages, the four orientations of the interior space have had a strict conformity with those of the outside space.

From the above analysis, we see that the notion of four orientations is expressed clearly in a cuboid interior space in the Parthenon and in the Taihe Dian, and that they are marked by the walls on the four sides. The treatment of space, form and decoration in the Parthenon and the Taihe Dian illustrates the idea of a Sacred Space in the two cultures. In both cases the interior space is enclosed and ordered. The subjects featured in the decoration of the Parthenon and the Taihe Dian are all connected with the notion of a Sacred Space. We shall return to this in the later chapters.

#### **4.2.3 A transitional space between the Sacred Space and the profane**

A Sacred Space in both the Parthenon and the Taihe Dian (the original plan) is enclosed by wall, roof and ambulatory, and there is an open gallery in the portico. By the entrances the interior space is linked with the exterior, and, at the same time, the treatment of the interior space is extended towards the outside. On this view, links between the decoration of the interior and exterior are part of the extension of one into the other.

As we said at the beginning, most extant Greek temples have only a single interior space, and a portico. There are two main types of plan in Greek temple architecture:



1. Prostyle: Prostyle temple - with a portico in front only.  
Amphiprostyle temple - with porticos at front and rear.
2. Peripteral: Peripteral temple - with porticos connected by open colonnades along the sides.  
Dipteral temple - with porticos connected by double ranges of columns along the sides.  
Pseudodipteral temple - with the same arrangement as regards spacing, but with the inner ranges of columns omitted.  
Pseudoperipteral temple - with porticos connected only by pilasters or columns in relief.

In the case of the Prostyle, for example, there is an interior space with a portico in front of it. The interior space extends in one direction. The Amphiprostyle has an interior space with porticoes at the front and rear, and the interior space extending in two directions. The Peripteral has an interior space with porticoes, open colonnades (galleries) along the walls (fig.4.7), and the interior space extending in four directions. The ambulatory of the temple acts as a transitional space between the interior and the exterior.

Similarly, most remaining examples of CCA are single-storied buildings containing a single room with a gallery or an over-hanging eave. The Prostyle and the Peripteral are also important types of plan in CCA. As with Greek temple architecture, the interior spaces of buildings extend towards the outside through the doorways. The Peripteral in CCA is called *fu jie zhou za* 副階周匝. For instance, the *Zhonghe Dian* 中齋殿 (fig.1.21b) and the original plan of the *Taihe Dian* (2.13b), are typical of Peripteral in CCA.

The ambulatory in both the Parthenon and the *Taihe Dian* acts as a transitional space between the interior and exterior, a transitional space between the Sacred Space and the profane. The treatment of the exterior is a continuation of the treatment and decoration of the interior; for the decorations which are used in the interior space are also found on the exterior. In the Parthenon the decoration of the interior is extended to the outside. For example, the frieze, which used to be placed in the interior of most Greek temples is, in the

case of the Parthenon, placed upon the walls of the ambulatories. Those life-size sculptures in the pediments can be viewed as an extension of the interior cult statues; and we take the pediment to be part of the interior decorations because of its subject-matter. The coffered ceilings in the ambulatory are an extension of the interior ones.

In the Taihe Dian, all the exterior decorations express the same theme as do the interior ones. For instance, the dragon design is used on each of the end eave-tiles; the coffered ceilings, the polychrome painted decoration on the beams, and the green and blue paintings on the bracket sets are all a repetition of the interior ones; and the fretwork design of two confronting dragons about a flaming pearl, which is on the platform of the gilt throne and the beams of the interior, is carved on the marble slabs of the balustrades of the three-tiered marble terrace. The ambulatory between the interior space and the exterior is a transitional space between the two different worlds.

### **4.3 Conclusion**

The essential characteristics of the interior space of the Parthenon and of the Taihe Dian are similar. The interior space of both buildings is an enclosed and ordered space, a cuboid space encircled by walls and roofs. The walls mark out the four orientations, and the cult-statue or the throne is placed on the horizontal axis facing the entrance. The most important orientation is indicated by the doorway and the portico. The ambulatory surrounding the interior space works as a transitional space between the interior and the exterior.

These treatments in both the Parthenon and the Taihe Dian imply that the interior space is a Sacred Space. We have seen that:

First of all, the temple and the palace are built in a sacred place; in addition to this they are the territory of a god or emperor; and consequently the interior of the building is a Sacred Space.

Thick walls and a large roof separate the interior space from the outside. The interior space is an enclosed and ordered space, and it is different from the profane space outside.

Finally, the Sacred Space is a real space. In such a real space, communication between humans and gods, and between the three cosmic regions, of Heaven, Earth and Hell becomes possible. So rituals, ceremonies and celebration are held in the interior space of both buildings, and sacrifices are offered here as well.

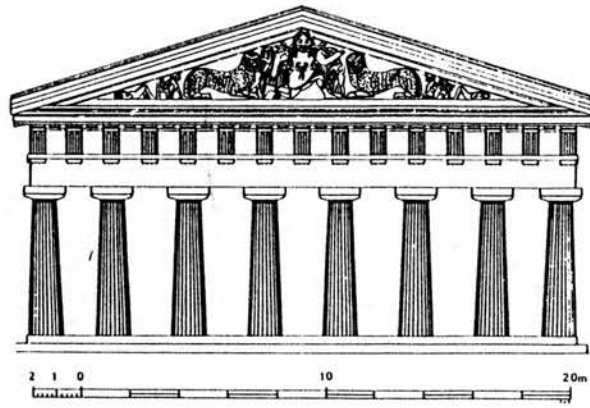
To build an enclosed and ordered interior space in the Parthenon and in the Taihe Dian is also to establish a Sacred Space. So the notion of the Sacred Space is expressed in the treatment of space, form and decoration. The Sacred Space here was realised in architectural space, as we have seen, as the enclosed and cuboid space in the two buildings. In this space, people could come into contact with the sacred and communicate with the other world, the world of gods or ancestors. The decoration of the interior space, the sculpture and the painting, is a representation of the Sacred Space. So the subjects and contents of the decorations are directly associated with the notion of a Sacred Space. The ambulatory, a space between the interior space and the exterior one, is a transitional space between the Sacred Space and the profane. The principles of a Sacred Space in the cosmos - symmetry, radiation, proportion, balance, order and harmony, become those of architecture. There is a link between architectural treatment and the cosmos. Following up this point in the next chapter, we are going to examine the treatment of the exterior form of both buildings and discuss the meaning of this in both CWA and CCA.

## CHAPTER V

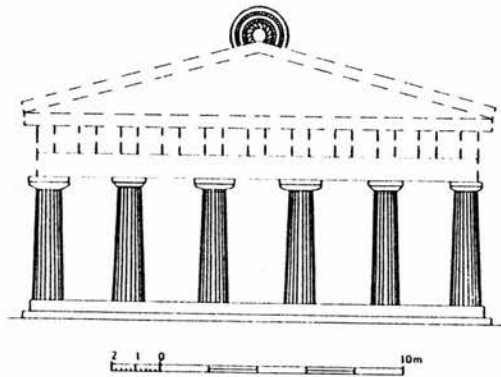
# THE EXTERIOR FORM AND A CULT IMAGE OF THE DEDICATEE

After studying the location, axis, centripetal theme, and interior space of the Parthenon and of the Taihe Dian, we now move our attention to their exterior form, and discuss the treatment of the exterior form, and its significance. The exterior form of a building in both CWA and CCA appears as a complete entity, and our study of the exterior form will focus on this aspect of it. In this chapter we investigate the treatment of the exterior form of the Parthenon and of the Taihe Dian. By comparing the buildings, we shall examine how the image of the buildings is created, and how the members of the exterior form - the mass, the roof, the column, the wall and the platform - work.

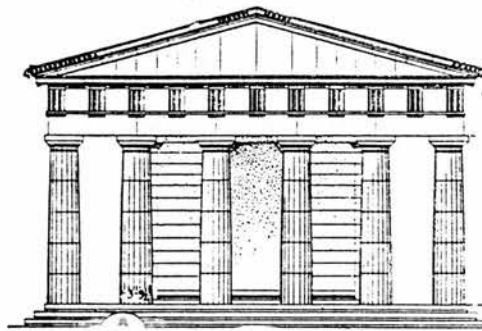
In their exterior forms the Greek temples of the sixth and fifth century BC are broadly similar. Figure 5.1 shows a group of elevations of Greek Doric temples of the sixth century BC. We can see that they look very alike, and that they seem to be derived from one model. Figure 5.2 illustrates a group of the elevations of *Wudian* 廡殿 temples and palaces built between the *Tang dynasty* 唐朝 (618-907) and the *Qing dynasty* 清朝 (1644-1911). Again, they look very similar. Here we may raise the question as to why the Greeks built these temples to such a uniform pattern. In China, why did the same thing happen? If we



a



b



c

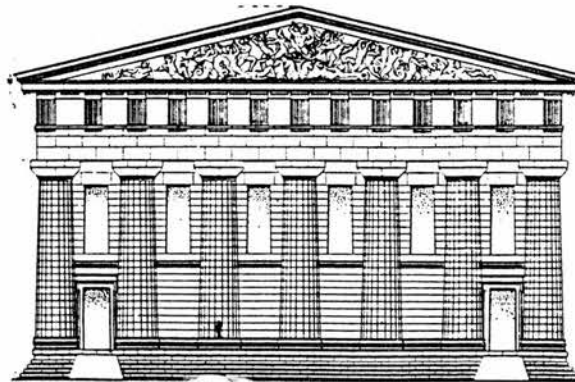
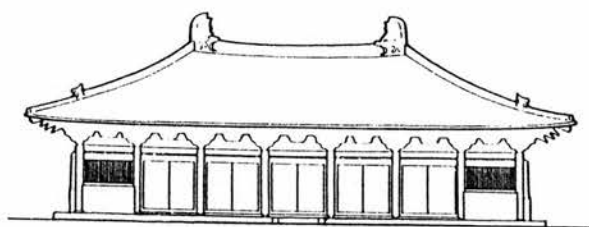
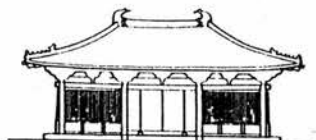


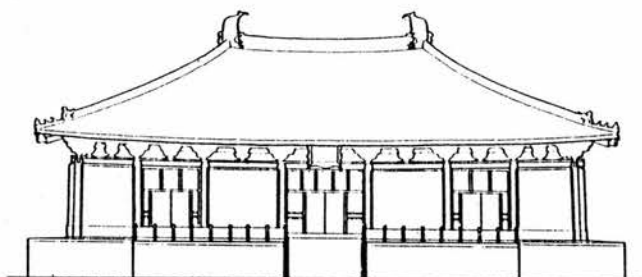
Figure 5.1. Elevations of Greek temples of the sixth and fifth century BC, (a) Temple of Artemis at Corcyra, (b) Temple of Hera at Olympia (from Coulton, J.J., 1977), (c) Temple of Apollo Epicurius at Bassae, and (d) Temple of Zeus Olympius at Agrigento (from Fletcher, B., 1987).



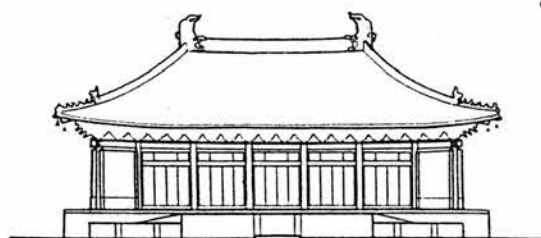
a — The main hall of the Foguang Temple



b The gate-house of the Dule Temple

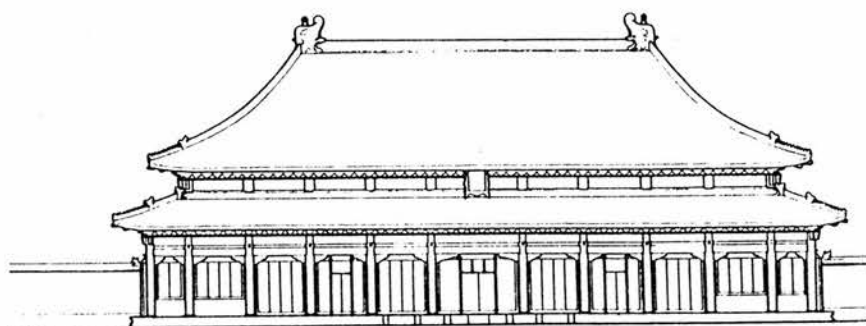


c The main hall of the Upper Huayuan Temple



山西芮城永樂宮三清殿

d. The Shanqing Dian



北京故宮太和殿·清康熙三十四年  
(2A 1097年)

e

Figure 5.2. Elevations of Chinese temples and palaces (from Liang, S.C., 1983), (a) the main hall of the Foguang Temple 佛光寺, (b) the gate-house of the Dule Temple 獨樂寺, (c) the main hall of the Upper Huayuan Temple (d) the Shanqing Dian 三清殿 of the Yongle Palace 永樂宮, and (e) the Taihe Dian.



agree that the treatment of the exterior form of Greek temples was derived from one 'model', what did this 'model' mean for the builders?

In general, the exterior form of Doric temples of the Hellenic age appears to be uniform, but closer scrutiny of the elevations, illustrated in figure 5.1 and 5.2, shows that each building has its own individuality. As Christian Norberg-Schutz writes:

At first sight, Greek temples may look quite alike, but on closer scrutiny they reveal important differences in form and expression. The single temple may be characterised as an individual member of a 'family', just as the gods formed a family which symbolised the various roles and interactions of men on earth.<sup>98</sup>

In fact, of course, each Greek temple has its own form. We may not, for instance, say that the individuality of the Parthenon and of the Temple of Zeus at Olympia is identical; although they were built at almost the same time, and their treatment of space, form and decoration was on the same lines (fig.5.3). Differences in each exterior form are achieved by variations in the elements of a building - roof, column, decoration and so forth. This is also true in CCA. We may raise another question here. Why do the elevations of the buildings in Greek temple architecture and CCA have different appearances, though they are similar in form? What did these differences in the treatment of the exterior form of the buildings mean?

Bearing these questions in mind, we shall now analyse the treatment of the exterior form of the Parthenon and of the Taihe Dian, and discuss the meaning of these treatments in expression. We shall show that the variations in the exterior form in both CWA and CCA have a relationship with the representation of the dedicatee, and that the treatment of the elevations of classical buildings is associated with the cult image of the dedicatee.

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98 Norberg-Schulz, Christian, *Meaning in Western Architecture*, (Studio Vista, London, 1975), p50.

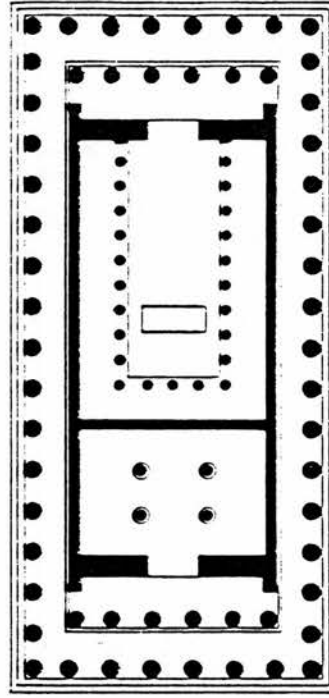
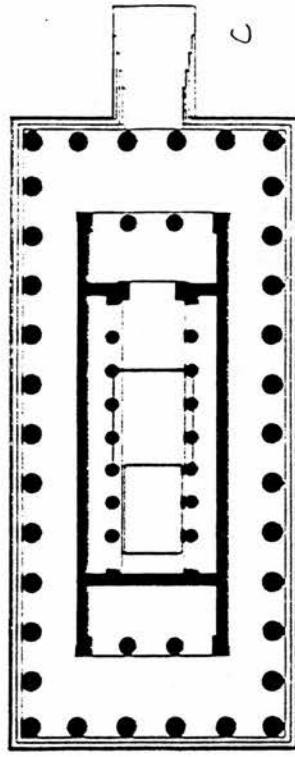
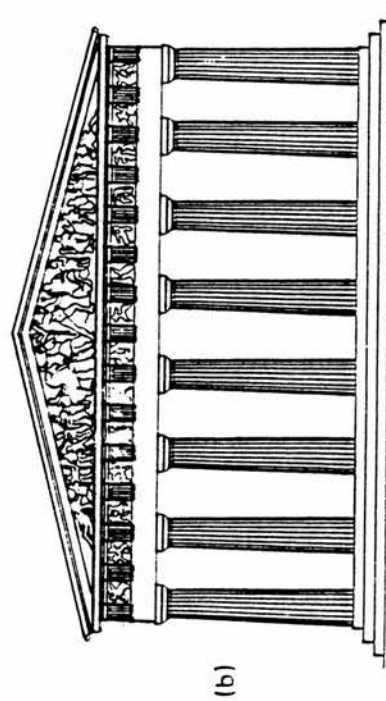
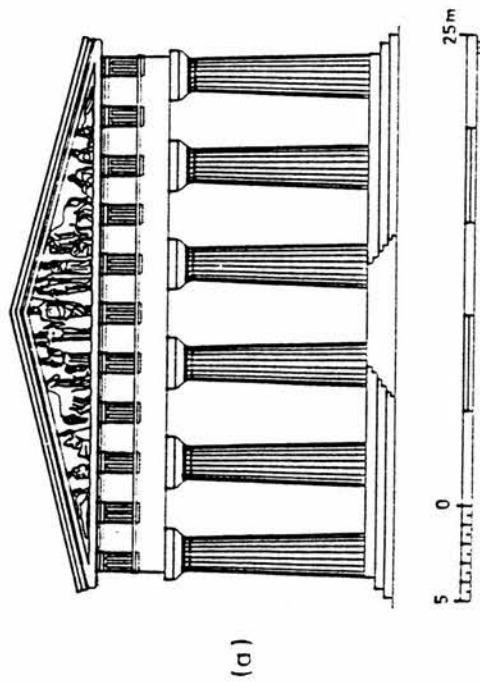


Figure 5.3. Plans and elevations of the Temple of Zeus at Olympia and of the Parthenon at Athens (from Coulton, J.J., 1977), (a) elevation of the Temple of Zeus, (b) elevation of the Parthenon, (c) plan of the Temple of Zeus, and (d) plan of the Parthenon.

## 5.1 The exterior form of the Parthenon and of the Taihe Dian

### 5.1.1 Elevation and division

As we saw in Chapter II, the exteriors of the Parthenon and of the Taihe Dian have four elevations: front, two flanks and rear. In the Parthenon, the front and the rear, the eastern and the western porticoes, are arranged in the same way. Figure 5.4 shows the division of the elevation in both CWA and CCA, the exterior being divided into four facades vertically and subdivided into three parts horizontally:

In CWA:

1. The pediment, sloping roofs and entablature.
2. The columns, walls and doorway.
3. The platform.

In CCA:

1. The double-eaved hip roofs.
2. The columns, walls and doorway.
3. The platform.

In the front facade of the Parthenon the pediment and entablature are emphasised. When one faces the Parthenon, one's eyes are always drawn to the sculptures and reliefs on the pediment and frieze. The entire structure of the Taihe Dian is covered by a roof of glazed yellow tiles, glistening like gold in the bright sunshine against the blue sky. The double-eaved hip roofs are doubtless the most important part of the facades. The distance from the lean-to eaves to the main ridge is 18.43 m., which is more than two-thirds of the height of the facades. Glazed yellow tiles cover the curved roofs and their upturned corners. Four sloping ridges fall away from a roof pommel at the top. In both the Parthenon and the Taihe Dian, the front colonnade is set-off by the shadows in the gallery. The terminal bays (the spaces between the columns) are shorter than the others. The doorways are all placed on the main axis. The area between the colonnades and eaves - the capitals and entablature in the Parthenon, and the beams and bracket sets in the Taihe Dian - is

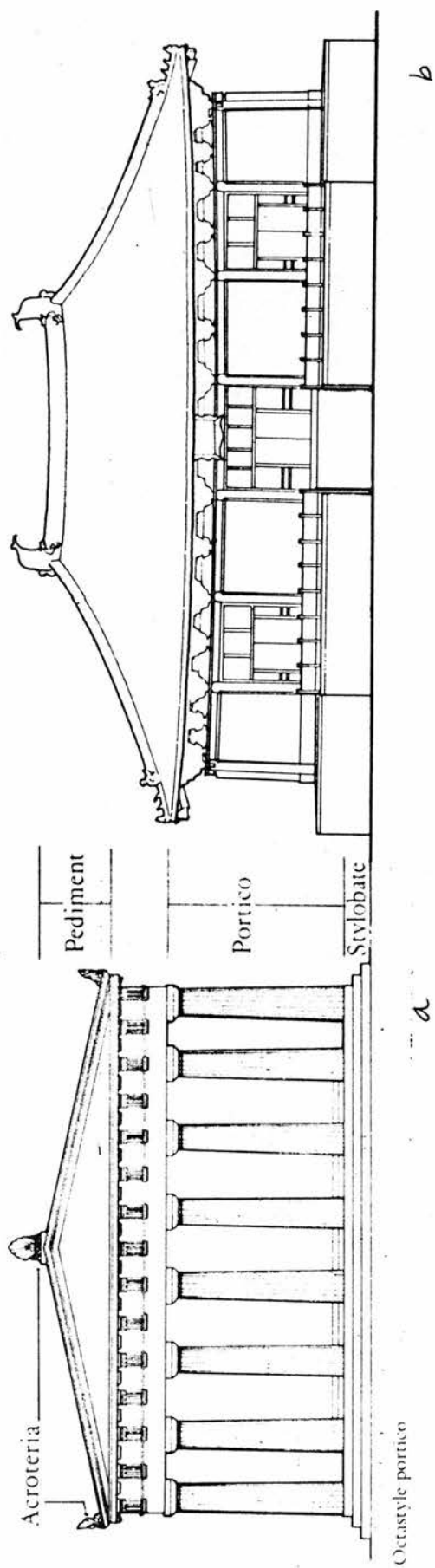


Figure 5.4. A comparison of elevations from CWA and CCA, (a) elevation of a Greek temple (from Summerson, J., 1963), and (b) elevation of a Chinese temple (from Liang, S.C., 1983).

decorated with great care. The platform of both buildings, about one metre high, forms another horizontal line in the elevation.

### **5.1.2 Variation of the elevation in CWA**

#### **Inclination of the pediment**

Differences in the exterior forms of Greek temples are seen in the treatment of each element of the elevations. In the case of the Parthenon, the front elevation is on the gable-end, so that from the front one can hardly see the two sloping roofs, but only a triangular pediment. A group of life-size sculptures is placed in the pediments. Figure 5.5 gives some examples of triangular pediments from Greek temples. In this illustration we can see that the inclination in each case is slightly different. The inclination of the pediment in earlier Greek temples is different from that in those of the Hellenic period. For instance, in the second temple of Hera at Samos (fig. 5.5a), the base angles of the pediment had an inclination of 1:1 (half base to height of the pediment). It became more gentle during the middle of the fifth century BC. In the case of the Parthenon, the base angles of the pediment have an inclination of 5.7:1 (fig.5.5d).

The differences in the inclination produce the different appearances of the temples. Greek temples built in the middle of the fifth century BC have a similar degree of inclination in their pediments. This is true of the Parthenon and of the Temple of Zeus at Olympia (fig.5.5b&d). It suggests that during this period the Greeks were searching for a standard inclination in the pediments of the temples.

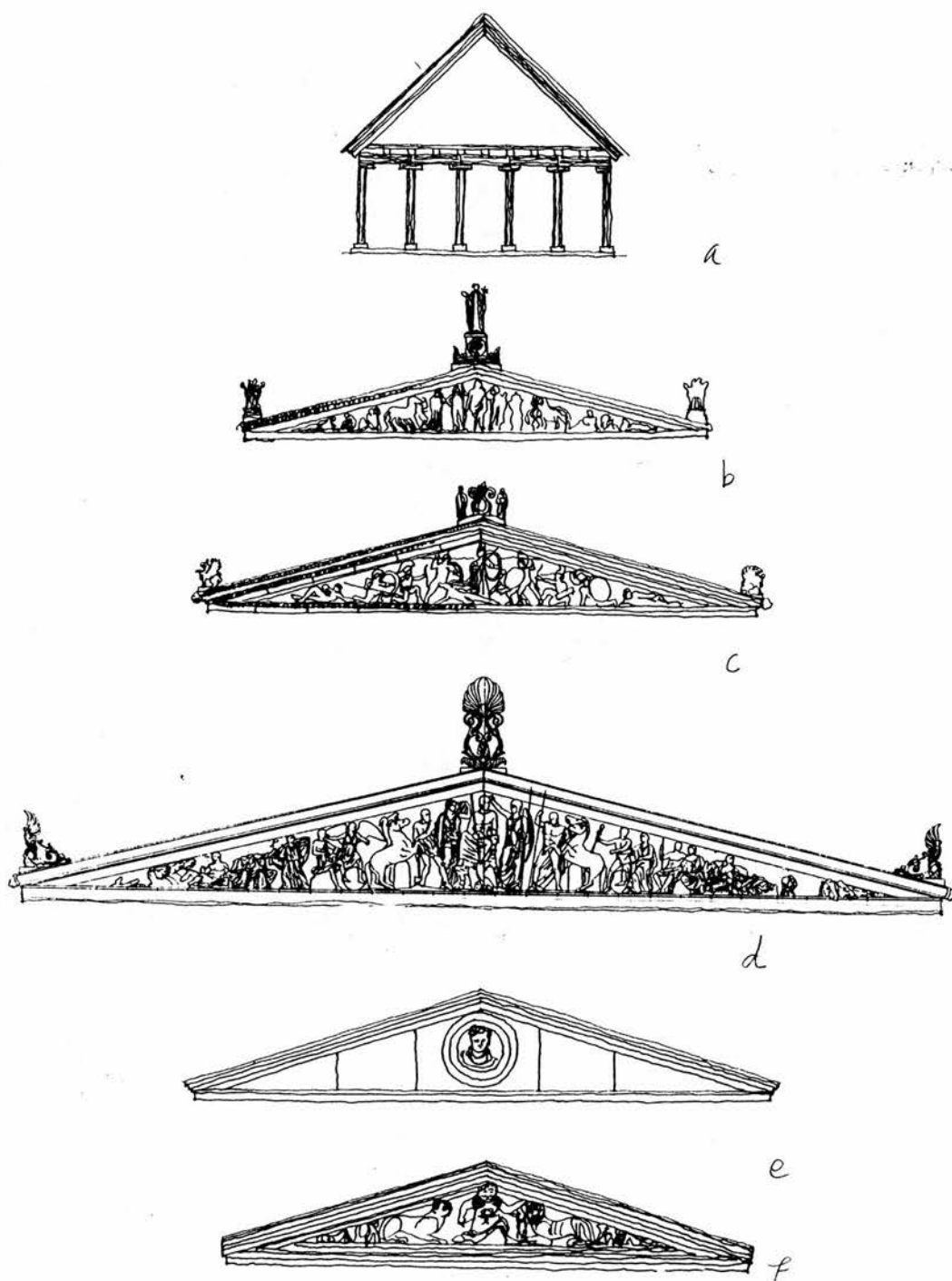


Figure 5.5. Pediments of Greek temple (drawing based on Coulton, J.J., 1977, and Boardman, J., 1985), (a) second temple of Hera at Samos, (b) Temple of Zeus at Olympia, (c) Temple of Aphaia at Aegina, (d) Parthenon at Athens, (e) monument of Mithradates at Delos, and (f) Temple of Artemis at Corcyra.



## Curvature of the echinus

In Doric temples, the curved echinus is one of the important elements which bring out the individuality of the buildings. The curved echinus is a very sensitive member of the composition of the elevation. All Doric capitals of whatever date are composed of an abacus square in plan above an echinus circular in plan, with, at its lower end, the echinus running into the neck of the column shaft. In most Greek Doric temples, the shape of the abacus remains unchanged throughout.<sup>99</sup> But the shape of the echinus changes through time. The same curvature of the profile is used in the columns. Figure 5.6 shows four Doric capitals from Greek temples of the Hellenic age. On close scrutiny, we can see that the curvature of the profile of the echinuses in each building is slightly different.

The form of the echinus varies with the date of the temple. Early capitals spread widely, and the curvature of the profile of the echinus rises gently outwards and upwards, like a round, bulging cushion; while later capitals are more compact, with the curvature rising sharply, and the echinus almost truncated. This change came gradually (fig.5.6), and occupied about three hundred years.<sup>100</sup>

The changes in the curvature of the echinus came about for purely aesthetic reasons, and not as a result of structural considerations. Figure 5.7 shows the curvature of the echinus on a larger scale. Comparing the four profiles of the echinus, we find that in the earlier examples the echinus has a considerable projection, and is fuller in outline, approximating to a parabolic section. In the case of the Parthenon, the projection is not so great and the profile more subtle, approximating to a hyperbolic curve. In the later examples, the whole capital is shallower and stiffer, and more conical in shape. From these examples

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<sup>99</sup> Coulton, John J., *Ancient Greek Architects at Work: Problems of Structure and Design*, (Oxbow, Oxford, 1977), p105.

<sup>100</sup> Ibid.

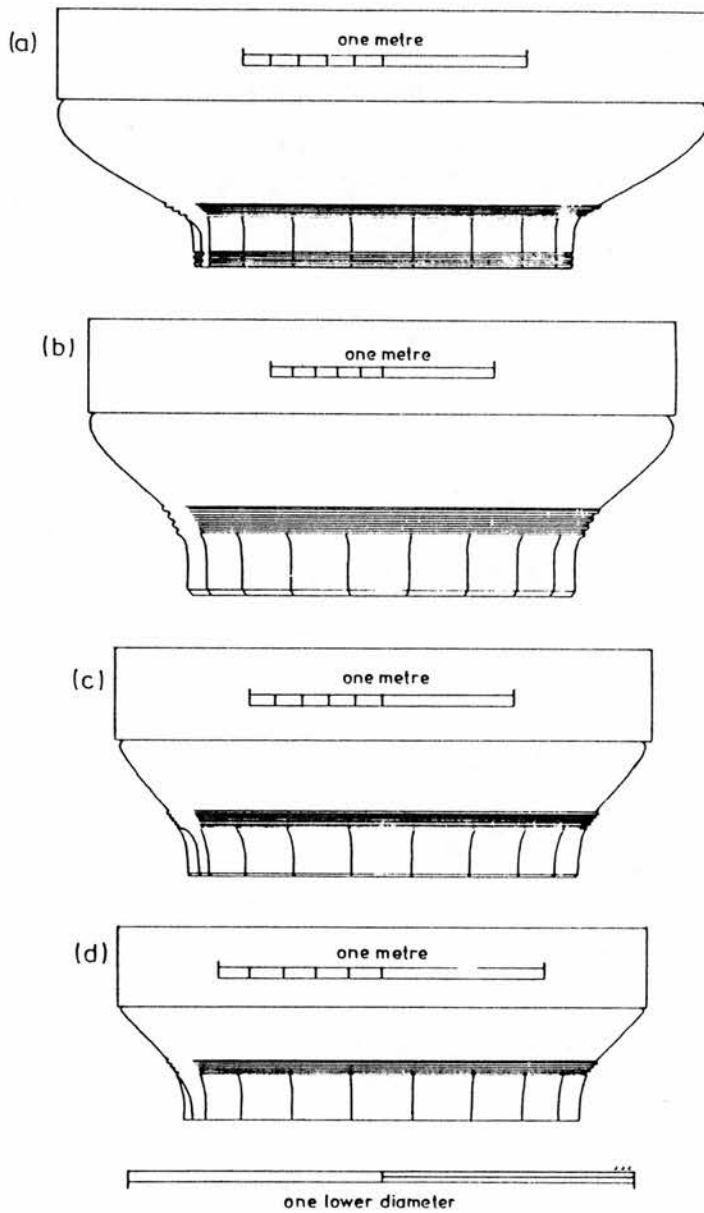


Figure 5.6. Doric capital profiles scaled to suit a uniform lower diameter (from Coulton, J.J., 1977): (a) Temple of Apollo at Corinth, (b) Temple of Zeus at Olympia, (c) Parthenon at Athens, and (d) Temple of Athena at Tegea.

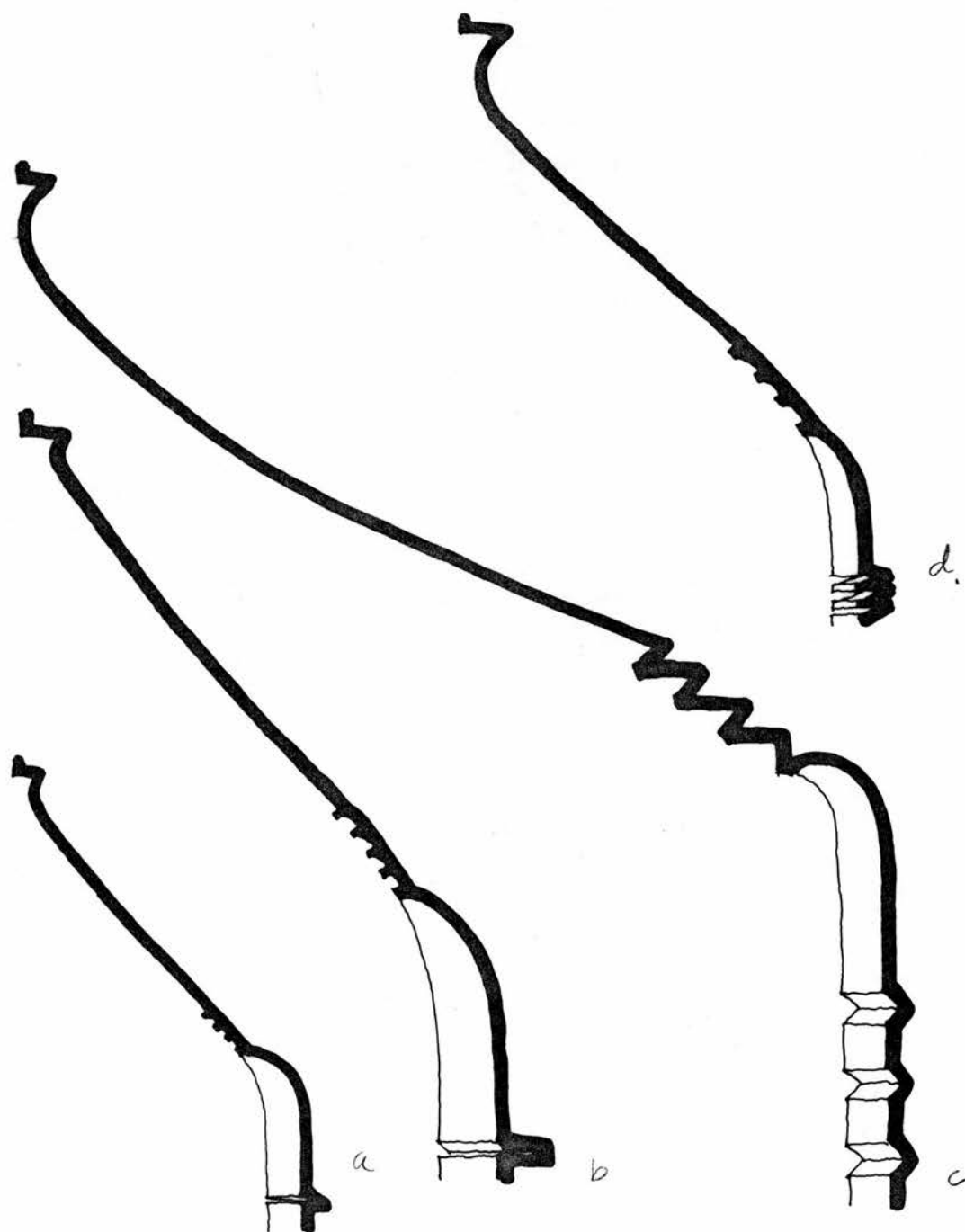


Figure 5.7. Doric capital profiles in large scale (drawing based on Fletcher, B., 1987): (a) Theseion at Athens, (b) Parthenon at Athens, (c) Temple of Poseidon at Paestum, and (d) Temple of Aphaia at Aegina.

we find that the very subtle differences in the curvature of the echinus produce differences in appearance and effect.

## **Proportions of the columns**

In Greek temples the proportions of the column changed in the course of time, but the shape of the column remained much the same. In the Parthenon the columns on the front of the portico measure 1.83 m. in their lower diameter and are 10.37 m. high. The proportions of the columns are 5.48:1 (height to lower diameter), and the corner columns are a little larger in diameter. The proportions of the Doric columns in the Hellenic period were usually from 4:1 to 6:1, but went up to 7:1 in the Hellenistic. These figures tell us that the earlier Doric columns in Greek temples are rather thick and strong, and that they gradually become more slender and elegant.

Figure 5.8 shows a group of Doric columns from Greek temples. Comparing them, we find that the spreading shape of these earlier capitals is due largely to their being much wider than the top drum of the shaft. For instance, the Doric columns of the first temple of Athena Pronaia at Delphi (5.8a) are characterised by a pronounced tapering of the shafts, which are much more slender than the earlier Doric columns, the proportions being 6.5:1, with the lower diameter almost double that of the upper one. Typical earlier Doric columns are those on the Temple of 'Neptune' at Paestum (5.8b). The monolithic column is twice as tall and therefore had by convention to be thicker, with its height little more than 4 times the lower diameter. The height of this sixth-century BC column, made up of several drums, varies from 4.5:1 to 5:1. The shaft is about 8 times as high as the capital. In the case of the Olympeium at Agrigento (5.8c), the proportions of the column are about 4.5:1, making it one of the thickest and strongest in Greek temple architecture. By the middle of the fifth-century BC, the ratio was about 5.5:1, as is the case in the Parthenon (5.8d). Thereafter the shaft tapered less, and became 11 or 12 times as high as the capital:

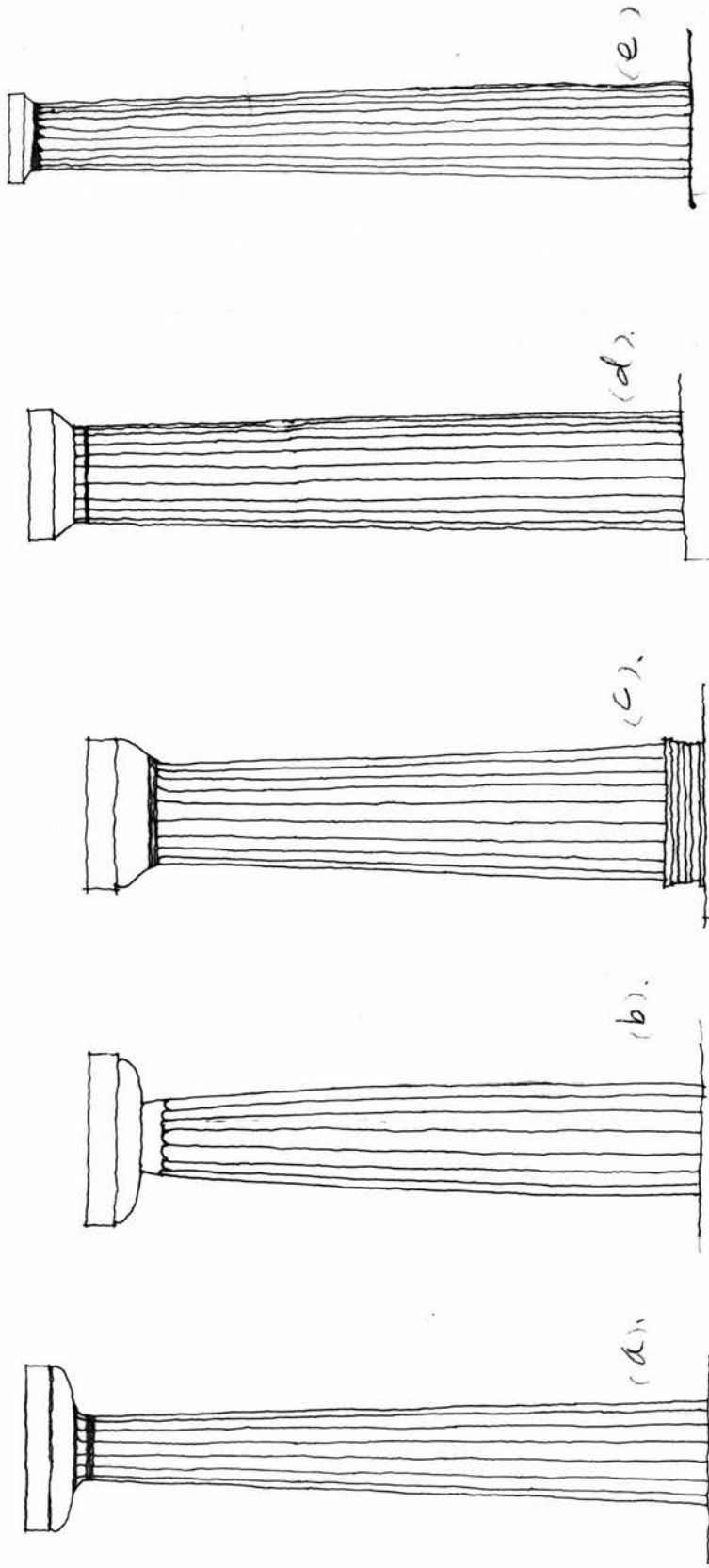


Figure 5.8. Greek columns in different periods: (a) the first temple of Athena Pronaia at Delphi, (b) Temple of 'Neptune' at Paestum, (c) Temple of Zeus Olympieum at Agrigento, (d) Parthenon at Athens, and (e) the stoa of Athena at Pergamon.

The capital had in fact become both lower and narrower although it still remained wider than any part of the shaft. The reduction of the tapering, which widened the top of the shaft, and the narrowing of the capital, would in any case have enabled the side of the echinus to curve more gradually; but another means of achieving that improvement had come into use, and this was to make the echinus taller than the abacus.<sup>101</sup>

Until the fourth-century BC, the proportions of Doric columns frequently exceed 6:1 (height to lower diameter), as is the case with the one from the stoa of Athena at Pergamon (5.8e), and in some cases even reach 7:1.

### **Proportions of the intercolumniation**

Just as the proportions of the columns affect the appearance of a building so do the proportions of the spaces between the columns. In the earlier Greek temples intercolumniation is flexible. For instance, in the case of the Athenian Treasury at Delphi, intercolumniation accounts for about one third of the distance along the exterior side and end walls. By the early fifth-century BC, the intercolumniation on Greek temples had become fairly standardised. In the case of the Temple of Zeus at Olympia (fig.5.9a), the columns are about 4.5 diameters high and centred only 2 diameters apart. In the temple of Aphaia at Aegina (fig.5.9b), the height of the columns is twice their axial abasing; but these dimensions are exactly one half of the size of the corresponding ones at Olympia, and the column diameter is relatively smaller too; so that the columns are more slender and have more clear space between them.

In the Propylaea on the Acropolis, the space between the columns is increased from about 2.06 m. to 3.88 m., the central bay having the largest one. In the case of the Parthenon, the columns on the fronts of the porticoes are 10.37 m. high, with a lower

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<sup>101</sup> Lawrence, Alexander. W., *Greek Architecture*, (Penguin Books, Harmondsworth, 1967), p103.



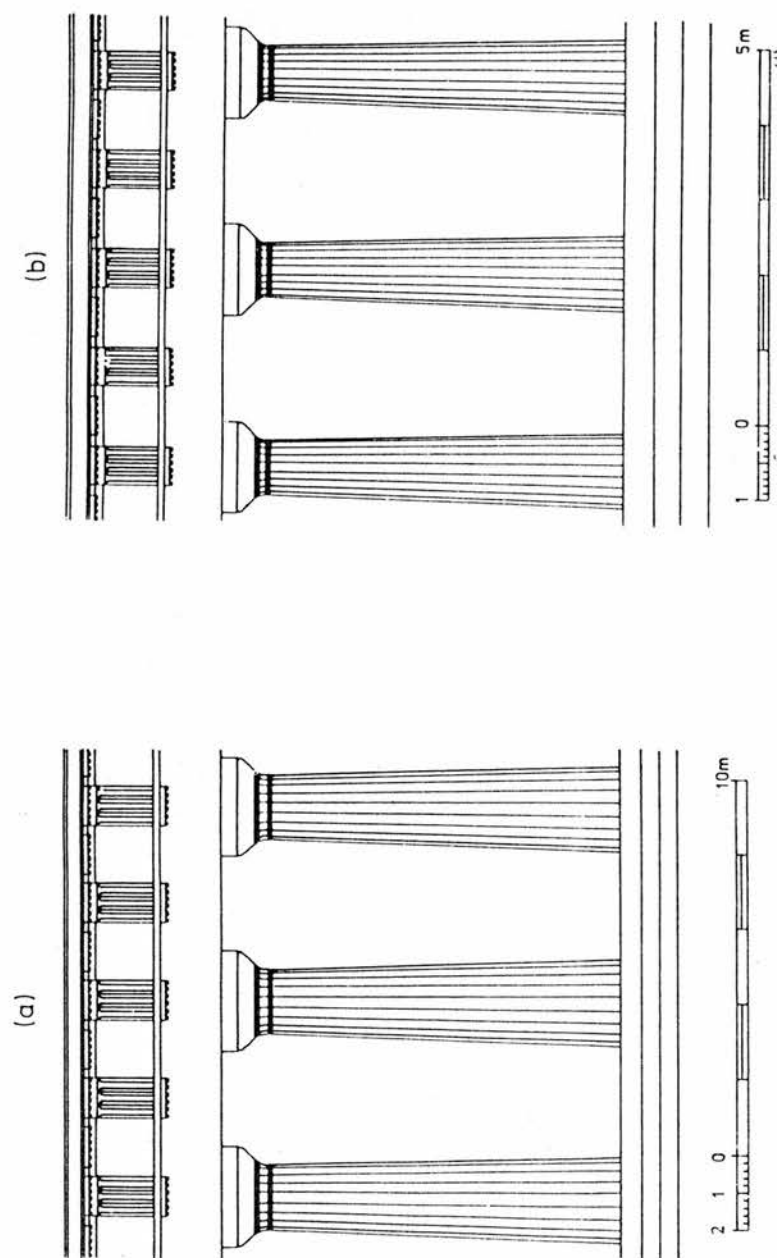


Figure 5.9. Proportions of the intercolumniation of Greek temples (from Coulton, J.J., 1977): (a) Temple of Zeus at Olympia, and (b) Temple of Aphaia at Aegina.

diameter of about 1.83 m., and with intercolumniation of about 4.27 m., making the ratio of intercolumniation to diameter 9:4. The height of the columns is 5.48 times the diameter. The two heights combined have a ratio of 3:2 to the intercolumniation, and stand in the same ratio, 9:4, to the width of the temple.<sup>102</sup> Since stress increases with size, it might seem reasonable to make the columns relatively thicker and stronger, and to reduce the clear space between them in large buildings.

### 5.1.3. Variation of exterior form in CCA

Similarly, variation in the treatment of the elements of the exterior in CCA brings out different effects. The most important variations of the exterior form are perhaps the curvature and inclination of the roof, the proportions of the columns and of the intercolumniation, and the shape of the bracket-sets.

#### Curvature and inclination of the roof

In CCA the curved roof is the most important member of the elevation. The curved roof had not been used in CCA until the late *Han* 漢. Since the *Han dynasty* 漢朝 (206BC-AD263), the curved roof has become an outstanding feature of CCA. At the time between the *Han* 漢 and the *Tang* 唐, the curvature of the profile of the roofs was gentle, and extended downwards in a graduated line from the main ridges to the eaves. The sloping ridges followed the curved roofs and formed a soft and gentle outline.

In the main hall of the *Nanchan Temple* 南禪寺, for instance, the inclination of the profile of the roof is 5:1 (half base of the section to its height, fig.5.10a). Standing in front of the hall one can not see the roof, for the form of the roof has been hidden by the overhanging eaves and the curved ridge. The four sloping ridges are curved gently. After the *Tang* 唐,

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<sup>102</sup> Ibid, p158.

the inclination of the profile of the roofs became steeper and steeper (fig.5.10b-d). The inclination of the profile of the roof was around 4:1 - 3:1. Finally, by the time of the *Ming dynasty* 明朝 (1363 - 1644) and the *Qing dynasty* 清朝 (1644-1911) it had reached about 3:2. In the case of the Taihe Dian, the curved roof starts from the eaves, and rises inwards and upwards to the top where the inclination is close to 1:1. In the Taihe Dian the two lowest purlins' inclination is 5:10 (height of the roof to its half base of the section); the second pair's 6:10; the third's, 6.5:10; the fourth's, 7.5:10; with the increase continuing to a ratio of 9:10. The inclination of the ridge purlin can be 10:10 (fig.5.10f).<sup>103</sup>

The curvatures of the profiles of the roofs in CCA came very close to being standardised during the same period. Figure 5.11 illustrates the examples which were given in the *Yingzao Fashi* 營造法式 (Building Standards) of the *Song dynasty* 宋朝 (960-1279). From small buildings to grand halls the inclination and curvature are unchanged.

The curved roofs of the *Song dynasty* 宋朝 are extremely elegant. In the Building Standard of the *Song* 宋, the construction of a curved roof was called *Juzhe* 舉折 (degree of inclination), which was also called *Jujia* 舉架 in the *Qing dynasty* 清朝. According to the Building Standard of the *Song* 宋:

The profile of the roof plane is determined by means of a *ju* 舉, or 'raising' of the ridge purlin, and a *zhe* 折, or 'depression' of the rafter line. The pitch is determined by the 'raise' of the ridge, which may make a slope varying from 1:2 for a small house to 2:3 for a large hall, with gradations in between. The height of rise is called the *juzhe* 舉折. The curve of the rafter line is obtained by 'depressing' or lowering the position of the first purlin below the ridge by one-tenth of the amount of the *juzhe* 舉折 off a straight line from the ridge to the eave purlin. Another straight line is then drawn from this newly plotted point to the eave purlin, and the next purlin below is 'depressed' by one-twentieth of the *juzhe* 舉折. The process is repeated, and each time the 'depression' is reduced by half. The points thus obtained are joined by a

103 Liang, Sicheng, *A Pictorial History of Chinese Architecture: a Study of the Development of its Structural System and the Evolution of its types*, (MIT Press, Cambridge, Mass and London, 1984), p21.

唐、宋、遼、金  
建築實例屋頂舉折示意圖

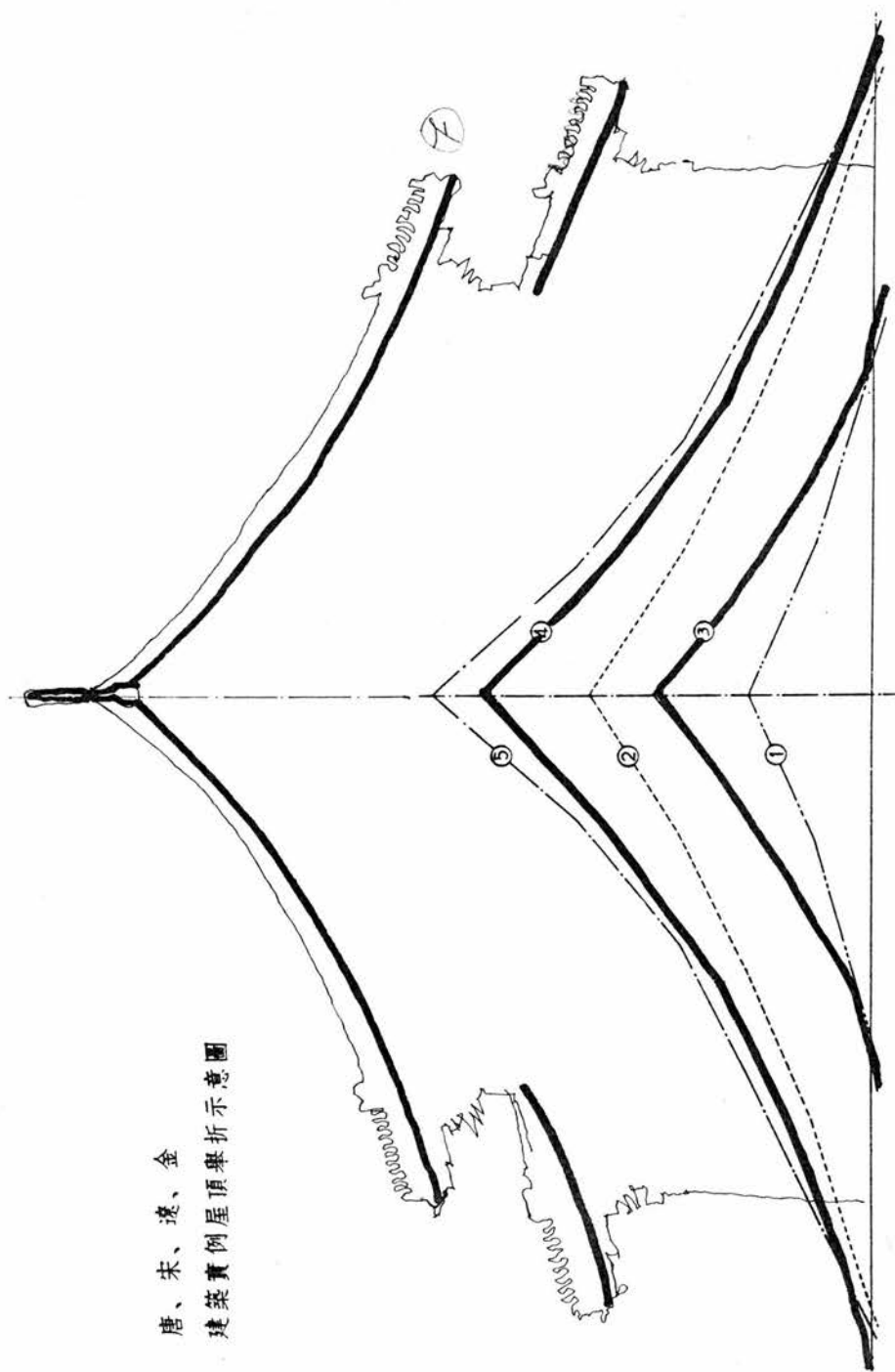


Figure 5.10. Curvature of roofs of CCA at different periods (drawing based on Liang, S.C., 1983), (a) the *Tang*, (b) the *Song*, (c) the *Song*, (d) the Building Standard of the *Song*, (e) the *Jin*, and (f) the *Ming* (the *Taihe Dian*)

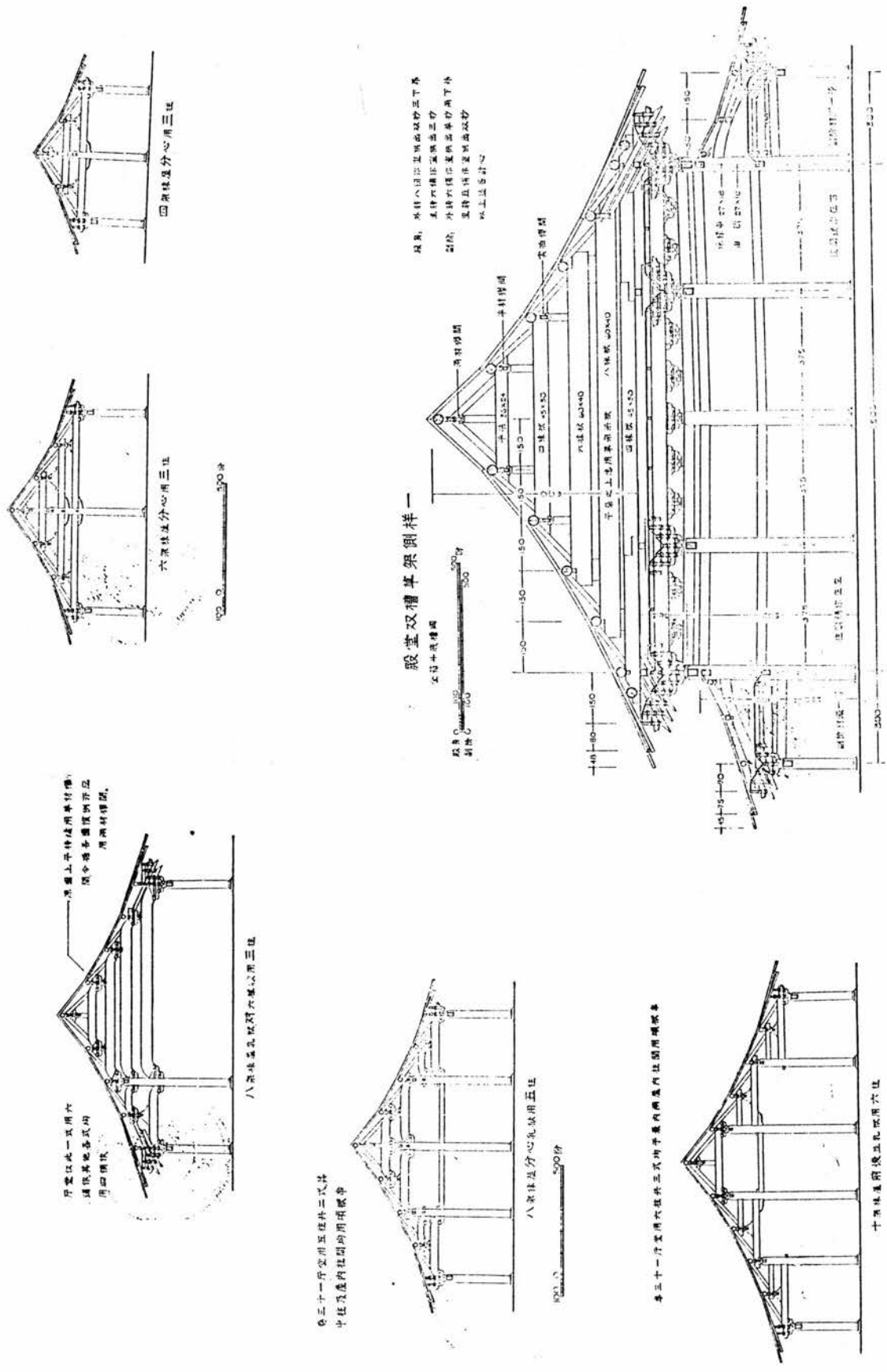


Figure 5.11 Sections from the *Yingzao Fashi* 营造法式 (Building Standards) of the Song dynasty 宋朝 (from Chen, M.D., 1986).

series of straight lines and the roof line is plotted. This process is called *zhewu* 折屋, or 'bending the roof'.<sup>104</sup>

The height of the ridge purlin of the *Song* 宋 structure is predetermined, and the curvature of the profile of the roofs is achieved by 'depressing' the successive purlins below (fig.5.10d). The large curved roof of the Taihe Dian occupies almost two thirds of the height of the elevation; and the entire structure is crowned by glazed tiles. From the vertical section of the Taihe Dian (fig.5.10f), we find that there is a large empty space between the curved roof and the flat ceiling, necessitated by the construction of a roof of this particular shape.

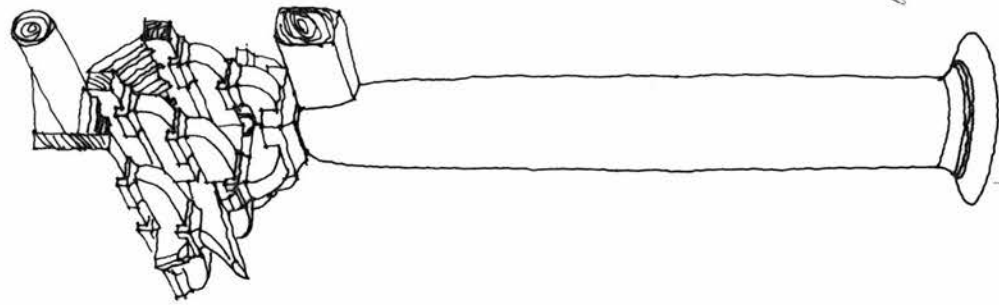
## Proportions of the columns

In CCA, the rules for the proportions of the column are rather loose. In the *Han dynasty* 漢朝, the columns were usually thicker than are those of later times. The proportions of the columns of this period are from 4:1 to 6:1 (height to the lower diameter). The columns in the *Tang dynasty* 唐朝 and the *Song dynasty* 宋朝 (fig.5.12a&b) were thicker than those of the *Ming* 明 and the *Qing* 清 dynasties (fig.5.12c&d). For instance, the columns of the gatehouse of the *Dule Temple* 獨樂寺 (the temple of Unique Happiness), *Jixian* 薊縣, *Hebei* 河北 (fig.1.13a) are among the finest examples of the *Song* 宋, and are 4.33 m. high, with a lower diameter of 0.5 m.; a tapering of about 25%, and proportions of 8.5:1. According to the Building Standard of the *Song* 宋, the diameter of the columns may vary from one *cai* 材 (about 0.3 m.) to three *cai* 材 (about 1 m.). After the *Song* 宋, the columns in CCA become increasingly slender. In the case of the Taihe Dian, the six gilt columns standing in the centre of the interior space are 12.63 m. high, and their lower diameter is 1.06 m. (the

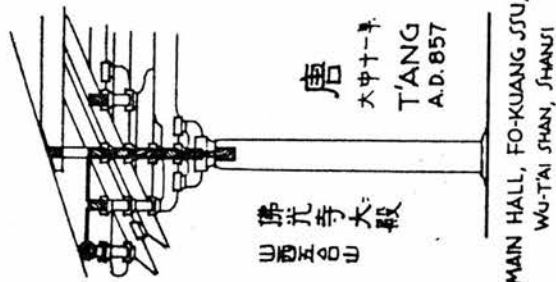
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<sup>104</sup> Ibid, p17.

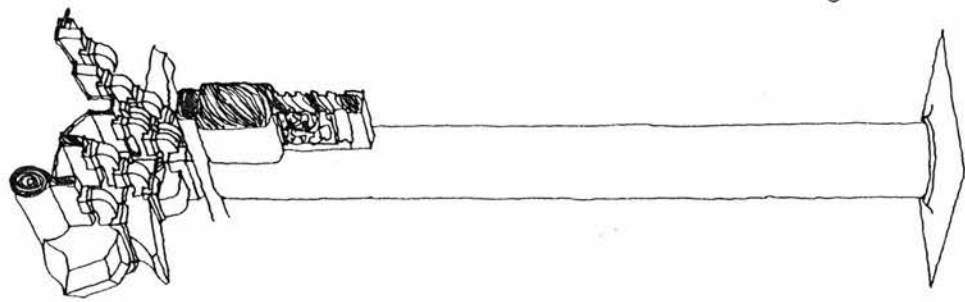




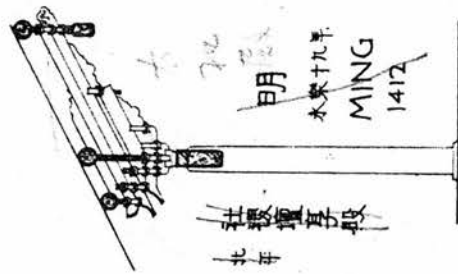
a



b



c



d

Figure 5.12. Chinese columns in different periods: (a) the *Yingzao Fashi* 营造法式 (Building Standards) of the Song dynasty 宋朝, (b) the main hall of the *Foguang Temple* 佛光寺 of the Tang dynasty 唐朝, (c) and (d) the *Ming* 明 and the *Qing* 清.

proportions being about 12:1). In the *Qing* 清, according to the Building Standard of the *Qing* 清, the proportions of columns were fixed at a standard ratio:

The *Qing* 清 regulations specify the diameter of a column as six *doukou* 斗口 (four *cai* 材 in *Song* terms), and its height as 60 *doukou* 斗口 or ten diameters. The diameter of a column of the *Song* dynasty 宋朝, according to the *Yingzao Fashi* 營造法式 (Building Standards), never exceeded three *cai* 材, and the height was left to the discretion of the designer. Thus proportionally the *Qing* 清 column is much enlarged and the *dougong* 斗拱 drastically reduced in size, dwindling into insignificant pettiness. An unprecedented increase in the number of intermediate bracket sets results.<sup>105</sup>

Similarly, in CCA, columns in the same building have the same proportions. The buildings built during the same period have similar proportions in their columns.

## Proportions of the intercolumniation

In CCA, the variations we find in the proportions of the columns appear also in the proportions of the intercolumniation. The width of intercolumniation was usually about three metres before the *Tang* dynasty 唐朝. Then, it gradually became greater and greater. Figure 5.13 illustrates three examples of the proportions of intercolumniation in different periods. In the case of the gate-house of the *Dule Temple* 獨樂寺 (fig.5.13a), the proportions of the intercolumniation in the three bays are uniform. In the main hall of the *Foguang Temple* 佛光寺 (Temple of Buddha's light), *Wutai Shan* 五台山, *Shanxi* 山西 Province (fig.5.13b), the two terminal bays are slightly narrower than the rest, and the five bays in the centre are square-shaped. In the *Taihe Dian* (fig.5.13c), the central bay is 8.44 m. in width, the other eight bays 5.53 - 5.56 m., and the two corner bays 3.61 m. On the front elevation of the hall the width of the intercolumniation increases visibly from the two ends towards the centre.

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<sup>105</sup> Ibid, p20.

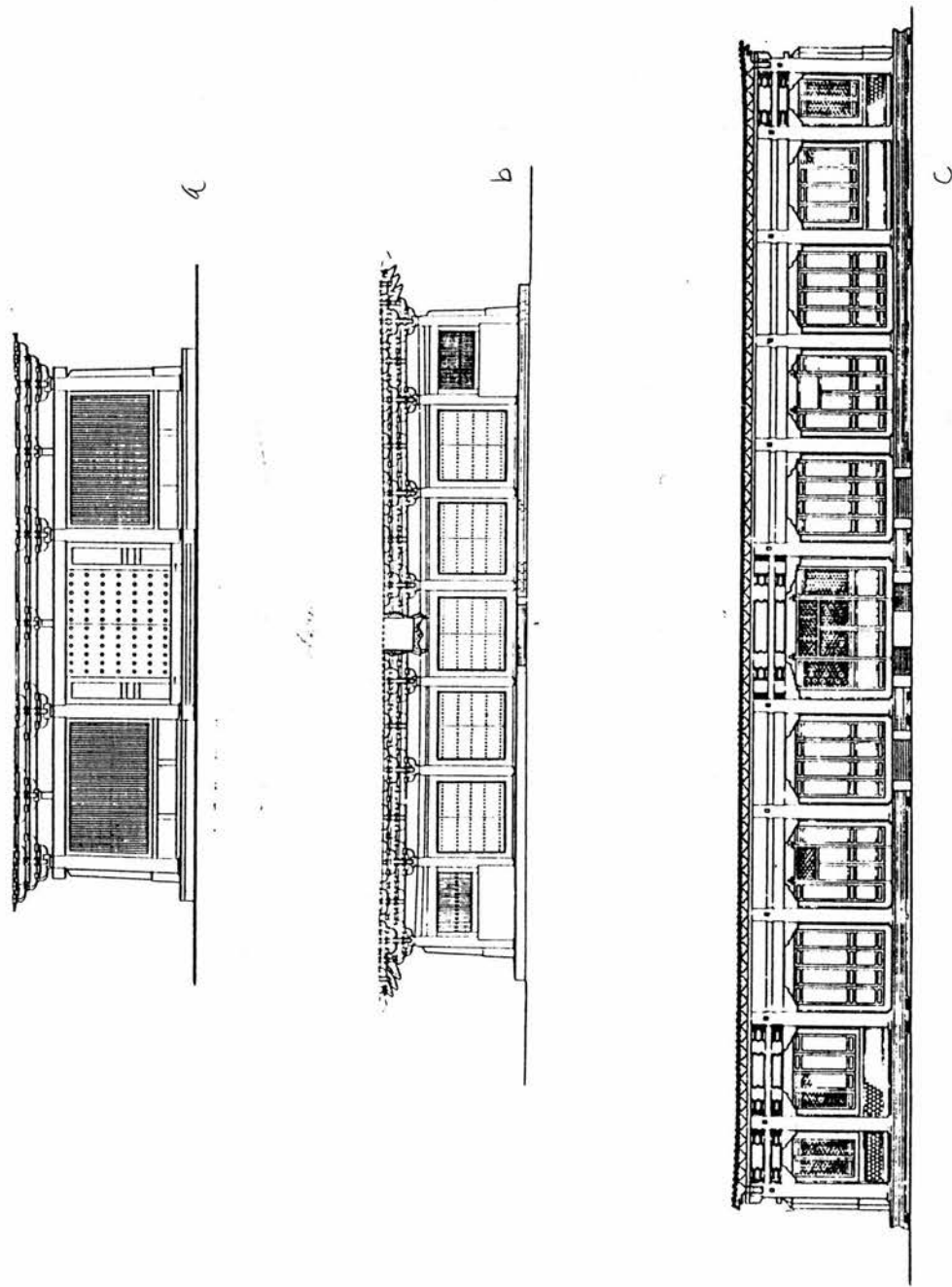


Figure 5.13. Proportions of the intercolumniation of Chinese temples and palaces: (a) the gate-house of the *Dule Temple* 獨樂寺, (b) the main hall of the *Foguang Temple* 佛光寺, and (c) the *Taihe Dian*.

In CCA the space between two columns on the front of a building is called *jiang* 間, and is an important part of the composition. "The basic concept involves the use of the *jiang* 間 or bay room, as a standard unit which may be expanded or repeated to form either individual buildings or groups of buildings."<sup>106</sup> The *jiang* 間, the space between the two columns, is designed as a complete unit. It is symmetrical, and is of centripetal design. The proportions of the *jiang* 間 correspond to those of the building as a whole.

In both the Parthenon and the Taihe Dian the ratios of the columns are modified in a particular way. We find that the exterior form of the Parthenon or of the Taihe Dian is harmonious because the proportions of each element are suited to the proportions of the building as a whole. The creation of harmony between the proportions of the roofs, columns and platforms, and the proportions of the whole building, produces a near perfect composition of horizontal, vertical, diagonal, curved and straight lines; of mass and space; of small and big; and of thick and slender. In both the Parthenon and the Taihe Dian the columns are the components which divide the elevation vertically and give rhythmic effect to the building; and this means that intercolumniation is an important member of the composition.

## Shape of the bracket-sets

As are the capitals in CWA, the bracket set is an important element of the structure, transferring the load from the roof and beam to the shaft of the column. Its unique shape is one of the most striking features of these buildings. It is the most sensitive and decorative element in a building in CCA. Differences in the shapes of bracket sets bring out the individuality of the buildings.

The bracket set is composed of two elements: the square block, called *dou* 斗, and the block of crossed arms spreading in four directions, called *gong* 栱. The largest square block

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106 Liu, Laurence. G., *Chinese Architecture*, (Academy Editions, London, 1989), p27.

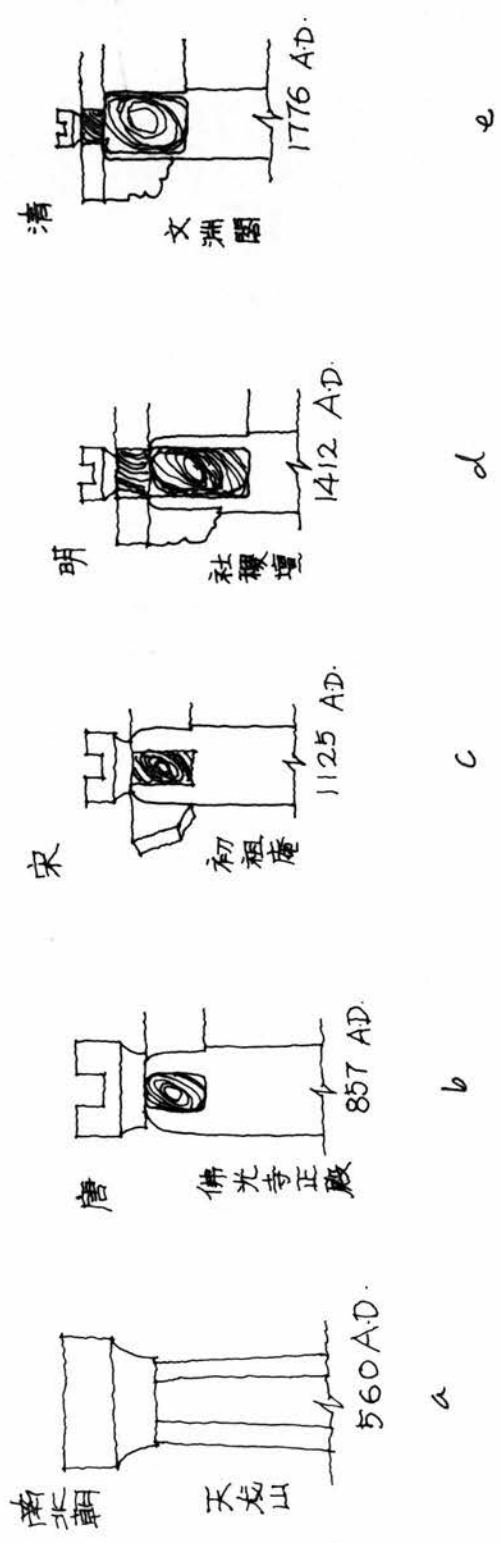


Figure 5.14. Shape of the bracket sets in different periods: (a) the North and South dynasty, (b) the Tang, (c) the Song, (d) the Ming and (e) the Qing.

at the bottom is called *ludou* 櫨斗. Figure 5.14a shows an example of *dougong* 斗栱 from the North-South dynasty, of around 560 AD. In this example, we find some of the characteristics of the earlier bracket sets of CCA. Its large simple square block sits upon the top of the shaft, and, as with the capital of a Doric column, the lower half is curved. During the *Tang dynasty* 唐朝, the width of the *ludou* 櫨斗 was equal to the diameter of the column, as is the case with the one in the main hall of the *Foguang Temple* 佛光寺 (5.14b). The beams cross the top of the column where there is entasis, just below the *ludou* 櫨斗. The lower half of the *ludou* 櫨斗 is curved as well. From *Song* 宋, the *ludou* 櫨斗 becomes smaller and smaller, and the curve of the profile of the *ludou* 櫨斗 disappears gradually.

Comparing the bracket sets in the Taihe Dian (fig.5.12d) with the earlier ones, such as those in the main hall of the *Foguang Temple* 佛光寺 (fig.5.12b), the most noticeable change is the gradual diminution in the size of the bracket set from about one third of the height of the column to less than one sixth of its height. In the case of the main hall of the *Foguang Temple* 佛光寺, there is one intermediate set placed between the two columns. The enormous bracket sets of four tiers of cantilevers - two tiers of *gong* 栱 and two tiers of *ang* 昂 - occupy the whole area between the eaves and the columns, the space being about half the height of the columns. So in the elevation the bracket sets look extremely large in mass, and are impressive with their vigorous and robust proportions.<sup>107</sup>

In the Taihe Dian, the bracket sets of this gigantic hall are extremely small compared with the ones in the main hall of the *Foguang Temple* 佛光寺. There are eight intermediate sets placed in the central bay. From a distance the presence of bracket sets is hardly noticeable.<sup>108</sup> In this case, the bracket sets and polychrome painted beams and column-heads form a horizontal green and blue line between the glazed roof and the colonnade.

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<sup>107</sup> Liang, Sicheng, *A Pictorial History of Chinese Architecture: a Study of the Development of its Structural System and the Evolution of its types*, (MIT Press, Cambridge, Mass and London, 1984), p43.

<sup>108</sup> Ibid, p106.



This is a prominent characteristic of CCA of the *Ming dynasty* 明朝 (1363 - 1644) and *Qing dynasty* 清朝 (1644-1911) .

The following diagram gives a comparison of exterior form in the Parthenon with that in the Taihe Dian:

Parthenon	Taihe Dian
The portico: The portico is in the gable end, with the result that the sloping roofs are hardly to be seen from here. The pediment and the colonnade are the major members of the composition.	The portico: The portico is on a long side, with the result the curved roof becomes the major member of the composition (2/3 of the height of the portico).
Inclination in the pediment: The inclination in the pediment is of 5.7:1.	Inclination and curvature: The inclination of the profile of the curved roofs is from 2:1 to 1:1.
Capital: The curvature approximates to that of a hyperbolic curve.	Capital: There are eight intermediate sets in the central bay.
Proportion in the column: The proportions of the columns are 5.5:1.	Proportions in the column: The proportions of the columns are 12:1.
Proportion in the intercolumniation: The proportions in the intercolumniation are 9:4.	Proportion in the intercolumniation: The proportions of the intercolumniation range from 5:8 to 5:3.

The slightly differing inclination, curvature and proportions of the elements gives each building its own character. For instance, the *Wudian* buildings in CCA have the same general appearance; but each of them has its own character because of differences in the inclination, curvature and proportions of the elements of their exterior forms. This is also the case with the Doric temples in Greece.

## 5.2 Expression of some qualities of the dedicatee in the exterior form

The particular inclination, curvature and proportions of the elements of the exterior forms of buildings produce their own individuality. In the Parthenon the inclinations of the roof and pediment, the curvature of the echinus and the proportions of the columns and of the intercolumniation form the individuality of the temple. Similarly, in the Taihe Dian, the curvature and inclination of the roof, the proportions of the columns and of the intercolumniation, and the shape of the bracket-sets produce an individuality. We shall now investigate the proposition that the treatment of the exterior form of both buildings is associated with the cult image of the dedicatee.

### 5.2.1 The cult image of the dedicatee

In both Greek temples and CCA every building belongs to someone, or is dedicated to someone. The Parthenon, for instance, was dedicated to the goddess Athena. She was the dedicatee of the temple. The large spaces inside the building were established for housing a colossal cult statue of the goddess and keeping the treasure dedicated to her.

In classical Greece a temple belonged to only one patron god or goddess. Those Olympian gods and goddesses had their own territories and temples. For instance, in Olympia, the territory of Zeus and Hera, each had a temple. A cult statue was usually placed in the temple.

The Taihe Dian was built for the *Ming* and *Qing* emperors, who were the patrons and dedicatees of the hall. The large space inside the building was created only for the emperors. In the Forbidden City, the Taihe Dian, the *Zhonghe Dian* 中齋殿, and the *Baohe Dian* 保齋殿, belonged only to the emperors, and their gilt throne was placed in the centre

of each hall. Similarly, the main hall in a Buddhist temple in China is normally occupied by one Buddhist god or goddess, such as Buddha or *Guanyin* 觀音 (Goddess of Mercy; Avalokitesvara). The buildings usually bear their names, as is the case in Greece.

### **5.2.2 The qualities of the dedicatee and the exterior form of buildings**

In both Greek temples and Chinese Buddhist temples, gods and goddesses, the dedicatees of the buildings, are represented by a static likeness. Greek gods and Buddhist gods are all humanised, their images being directly derived from the human body. In Greek temples, the dedicatee is usually represented by a cult statue, such as the one of Athena in the eastern cella of the Parthenon (fig.2.9). It is a representation of the cult image of the goddess. The people come to the temple to worship the dedicatee so represented. Similarly, in Chinese Buddhist temples the cult image of the dedicatee is represented by a large cult statue of Buddha or Avalokitesvara, usually placed at the centre of the interior space.

The cult image of the dedicatee represented in the Taihe Dian is unlike those in Chinese Buddhist temples. Here, the emperor himself, seated on the gilt throne and dressed in official clothes, plays a cult image. In this case the place of the cult statue of the dedicatee is taken by the emperor himself. Figure 5.15 shows the first patron of the Taihe Dian, the *Yongle* 永樂 emperor wearing official clothes, and seated on the dragon throne. In this picture the emperor is seated in a formal manner which renders his appearance somewhat statuesque. In the Taihe Dian the emperor sits on the throne and accepts the worship of the people during the ceremony. Qualities of the dedicatee were represented in the cult statue in the Parthenon or in the ceremonially dressed seated emperor in the Taihe Dian.



Figure 5.15. Accession portrait of the *Yongle* 永樂 emperor wearing official clothes, and seated on the dragon throne (from Yu, Z.Y., 1984).

Some qualities of the dedicatee represented in the cult statue are also expressed in the exterior form of the building. In the Parthenon and the Taihe Dian certain qualities of the dedicatee are expressed by the cult statue and the seated emperor, and also by the exterior form of the two buildings. The following table provides a comparison:

The Parthenon	<div><div>honoured</div><div>majestic</div><div>rich</div><div>powerful</div><div>imposing</div><div>reposeful</div><div>grand</div><div>.....</div></div>	The cult statue of Athena
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It seems too difficult to describe the qualities of the goddess by using such simple words. Here we just want to show that the same qualities of the cult image of the dedicatee are expressed in both sculpture and architecture. This is also found in the palaces and in the Buddhist temples in China. For example, some qualities of the cult image of the emperor are represented by both an officially dressed seated emperor, and by the exterior form of the Taihe Dian:



The Taihe Dian

great  
grand  
honoured  
majestic  
rich  
imposing  
reposeful  
merciful  
.....

The cult image of an  
officially dressed seated  
emperor

Both cult statue and the exterior form of the building seem to be performing the same function. However, traditionally, we used not to accept that the exterior form represents the same things as does the cult statue inside the building. In fact, a close link between the cult image of the dedicatee and the exterior form of the building can be seen in both CWA and CCA.

In his treatises, Vitruvius mentioned that the relation between the 'thickness of the column' and its height was derived from the proportions of the human body. The proportions of the Doric column, for instance, are derived from the male body. Following the different proportions of the male body and the female body, he suggested that the Doric column expresses the 'strength' and the 'grace' of the virile body, and that the Ionic column follows the 'feminine slenderness' of the female body. The 'strength', 'grace' and 'feminine slenderness' in fact show some qualities of the dedicatee of the buildings. In Greek temples:

Rules of proportion have sometimes been credited with mystical significance, but in spite of the Greek obsession with numbers, architects seem normally to have



regarded them in a more prosaic light. The aim was to create an appearance which was satisfying in fact rather than in theory.<sup>109</sup>

However, the column in CWA is only one member of the exterior form. The exterior form is an architectural image of the dedicatee of the buildings. So the treatment of the exterior form in both the Parthenon and the Taihe Dian is linked with the cult image of the dedicatee. We can see the homologizations in the treatment of the temple and palace, and of the cult statue.

In Greece, for instance, cult statues have been replaced by small temples, or shrines. In the Temple of Apollo at Didyma (fig.5.16) the place for the cult statue is occupied by a small prostyle temple. In the eastern cella of the Parthenon, one would have seen the great cult statue of Athena standing near its western end; but in the cella of the Temple of Apollo at Didyma, instead of the cult statue of the god there stood a small prostyle temple. The portico of this small shrine faces the entrance, as did the cult statue of Athena in the Parthenon. The same qualities of the cult image of the dedicatee are expressed in both sculpture and architecture. There were a few more similar examples in the ancient Greek world, and they seem to support this theory.

In China, to build a small shrine instead a cult statue for purposes of worship was a common practice. Figure 5.17 shows a small stone shrine of the North-South dynasty standing upon a column in front of a tomb at *Dingxing* 定興, *Hebei* 河北. The small stone shrine was built in 569 AD, and was placed in front of the tomb. It could equally well have been a cult statue. There are many shrines in China working as a cult centres, without a cult statue inside them. In the case of the Taihe Dian, the arrangement of the front courtyard is a repeating or imitation of the treatment of the interior space of the hall. The position of the Taihe Dian, which is placed on the three-tiered terrace and on the horizontal axis of the courtyard, is a repeating of that of the throne with the seated emperor in the interior space

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109 Coulton, John J., *Ancient Greek Architects at Work: Problems of Structure and Design*, (Oxbow, Oxford, 1977), p63.

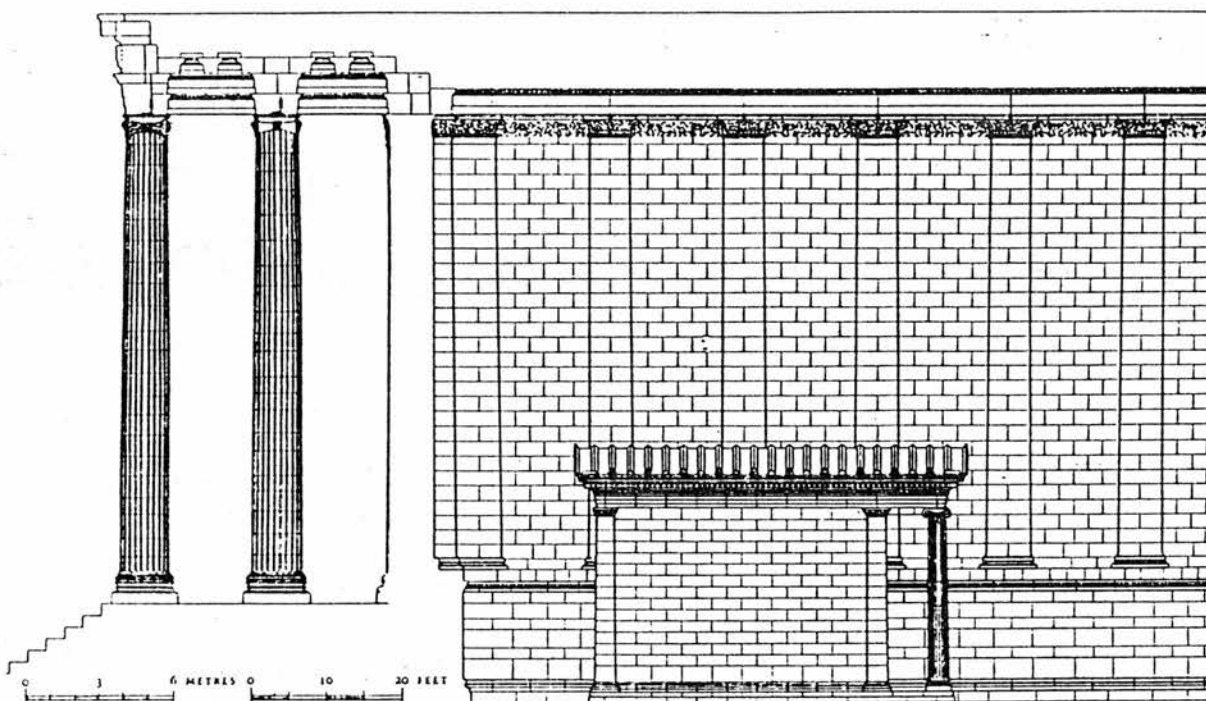
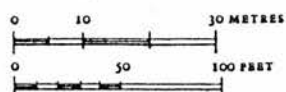
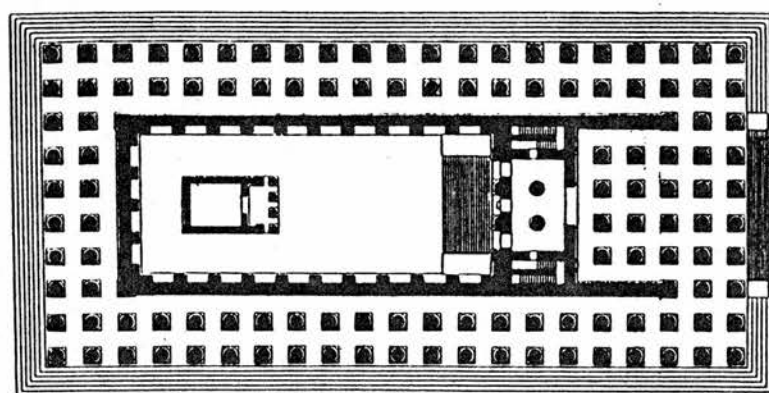


Figure 110. Restored section through porch and part of court, with side of shrine, Temple of Apollo, Didyma

*a*



*b*

Figure 5.16. Restored section through porch and part of court, with side of shrine, (a) section and (b) plan of the Temple of Apollo at Didyma (from Lawrence, A., 1967).

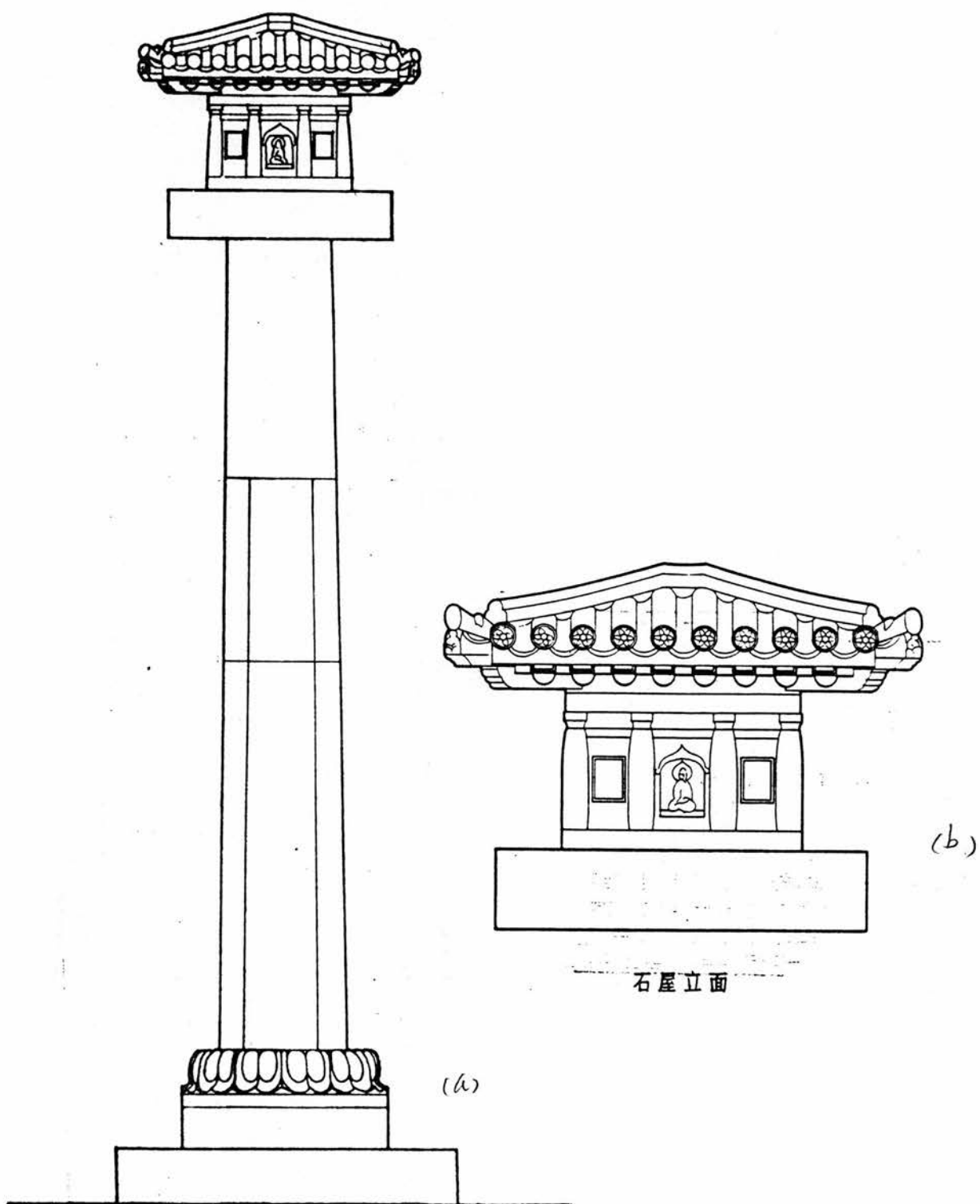


Figure 5.17. The monumental column of the North-South dynasty at *Dingxing* 定興, Hebei 河北 (from Liu, D.Z., 1980).

of the hall. Apparently the Taihe Dian was built as a cult image. It represents the Chinese emperor.

There is a sort of affinity in form and expression between the cult statue and the building, and this is reflected in their treatment and characteristics:

The cult statue	The building
<p>Independence:</p> <p>A cult statue is independent, and usually it is an individual statue (sculpture or painting)</p>	<p>Independence:</p> <p>A basic unit of CWA and CCA is a single building; and it is also independent and has no relation to other buildings.</p>
<p>Elevation:</p> <p>A cult statue has four elevations, the front, the rear and the two symmetrical flanks. The front elevation is symmetrical.</p>	<p>Elevation:</p> <p>A basic form in CWA and CCA has four elevations, the front, the rear and the two symmetrical flanks. The front elevation is symmetrical.</p>
<p>Division:</p> <p>A cult statue is subdivided into three major parts horizontally: the head, the body and the platform.</p>	<p>Division:</p> <p>The elevations of the basic forms of CWA and CCA are also subdivided into three major parts: the roof, the colonnade and walls, and the platform.</p>
<p>The scale of a cult statue:</p> <p>The scale of a cult statue is decided by the status of the dedicatee. Usually an important patron is represented by a larger cult statue.</p>	<p>The scale of a building:</p> <p>The scale of a building is also decided by the status of its dedicatee. The most important patron commands the largest building.</p>

<p>Stylisation:</p> <p>The cult statues are represented in a stylised form; and people with a little knowledge can recognise them easily.</p>	<p>Stylisation:</p> <p>The exterior forms in CWA and CCA are stylised and can be recognised easily.</p>
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During any one period the builders used similar inclinations, curvatures and proportions. For instance, the Temple of Zeus at Olympia and the Parthenon have very similar inclinations in the pediments, similar curvatures in the echinuses and similar proportions in the columns and in the intercolumniation. This means that the various builders' understanding of the qualities of the god or goddesses were in close agreement during any given period.

It is necessary to emphasise the importance of the front elevation in both CWA and CCA. We suggest that the front elevation of a temple or a palace, the portico, is its 'face'. As Vincent Scully writes: when one enters the Acropolis, the eyes are always being forced beyond the normal limit of their capacity by the Parthenon's octostyle facades.<sup>110</sup> In the case of the Parthenon, there are two front elevations (fig.5.18).

In addition to the inclination, curvature and proportions of the exterior form, the mass of the building represents the importance of the dedicatee. In China, the importance of a dedicatee, as a god among the gods or as an emperor, is represented by the mass of the buildings. The most important Buddhist gods, Buddha and Aralokitesvara, for instance, always have the biggest temple in the complex, as is seen at the *Foguang Temple* 佛光寺 and at the *Nanchan Temple* 南禪寺. The most important buildings have the largest mass. The Taihe Dian was the biggest building in CCA in the *Ming* 明 and *Qing* 清 dynasties.

<sup>110</sup> Scully, Vincent Joseph, *The Earth, the Temple and the Gods: Greek Sacred Architecture*, (Yale University Press, New Haven ,1963), p175.

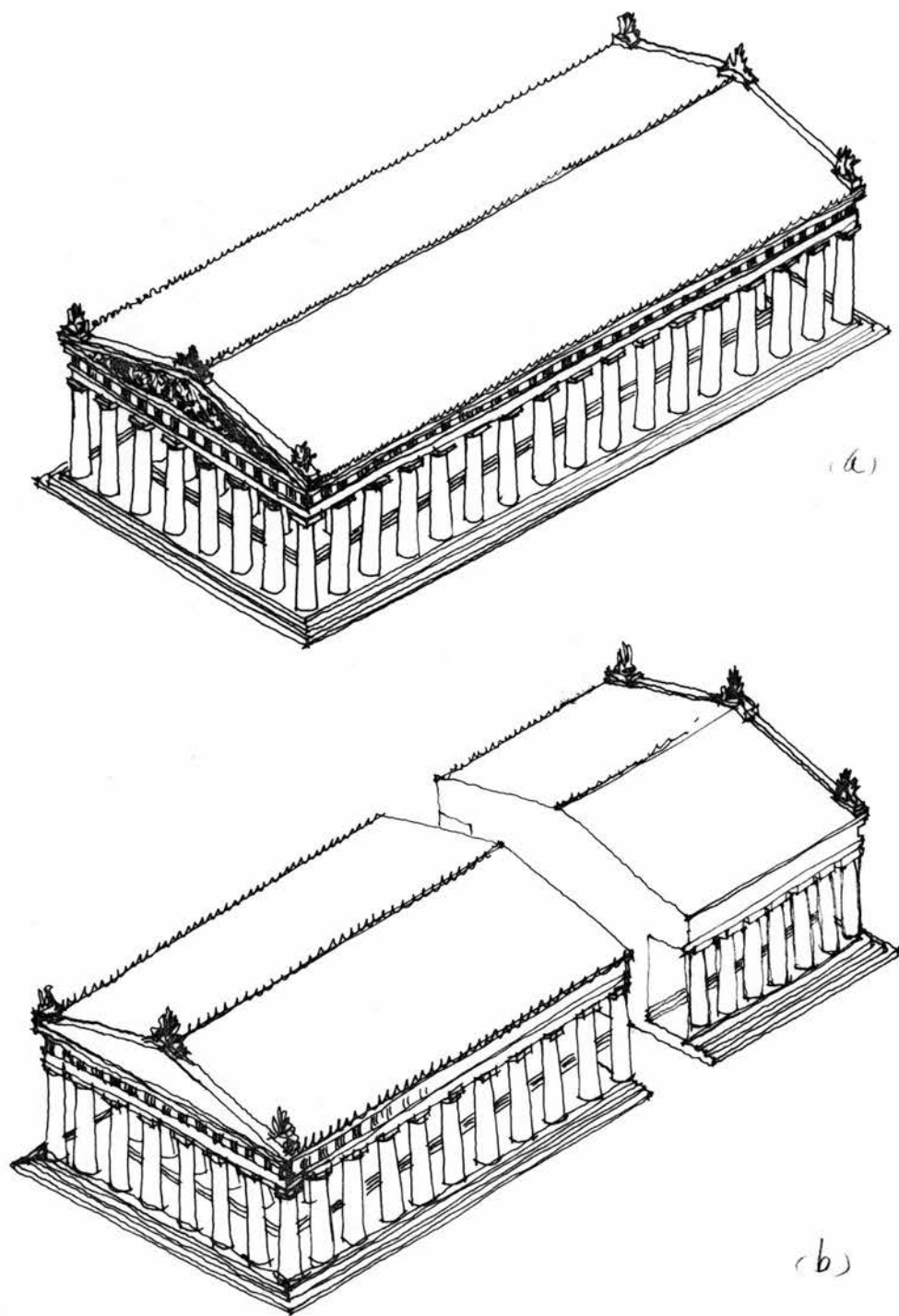


Figure 5.19. The Parthenon (a) consisted of two prostyle buildings (b).



This is true in Greek temple architecture. To the Athenians, Athena was the most important goddess, and her temple, the Parthenon, was the largest on the Acropolis.

### **5.3 Conclusion**

A comparison between the Parthenon and the Taihe Dian reveals many similarities in the treatment of their exterior forms. The variations in the inclination, curvature and proportions of the elements of the exterior form produce the character which distinguishes one from the other. The individuality of the buildings in both CWA and CCA is a result of subtle treatment of the exterior form. The treatment of the exterior form of the Parthenon and of the Taihe Dian is associated with the cult images of their respective dedicatees.

The same qualities of the dedicatee are represented in both the cult statue and in the exterior form of a classical building. The variations in the elevations of classical buildings are associated with the expression of certain qualities of the dedicatee. In the Parthenon, the massive structure, the inclination of the pediment, the curvature of the echinus and the proportions of the columns and of the intercolumniations produce a certain effect which expresses some of the qualities of the goddess. Similarly, in the Taihe Dian, the massive structure, the inclination and curvature of the roof, the proportions of the columns and of the intercolumniation, and the shapes of the bracket-sets expresses certain qualities of the emperor.

The treatment of the exterior form of classical buildings has also a certain cosmic function. The inclinations, curvatures, proportions and refinement of the elements of exterior form in CWA and CCA, produce a variety of effects. We shall go on to examine this in the next chapter.

## CHAPTER VI

# REFINEMENT AND THE CULT IMAGE OF THE DEDICATEE

We have examined the treatment of the exterior form in both the Parthenon and the Taihe Dian in Chapter V, and suggested that some qualities of a cult image of the dedicatee are expressed in the exterior form of the buildings. Pursuing this theme, we shall investigate refinement in the exterior of the Parthenon and of the Taihe Dian.

As we saw in the first chapter, the development of CWA and CCA can be divided into two stages: the formation of a basic form; and a process of refinement. The formation of a basic form, in both CWA and CCA, was a long process lasting from the earliest stages of the two civilisations till the appearance of a small three-bay building. In Greek temple architecture it happened during the middle of the seventh century BC. The transition from the first stage to the second was marked by the construction of some Greek temples built during the early sixth century BC. Such were the Temple of Artemis at Corcyra - now Corfu - (590 BC) and the Temple of Apollo at Corinth (540 BC). In CCA the first stage was completed by the *Eastern Zhou* 東周 (770-256 BC) and the transition from the first stage to the second can be dated back to the *Han dynasty* 漢朝 (206BC-AD263).

The appearance of refinement in both CWA and CCA marks the beginning of the second period, and the search for perfection of form. The Parthenon and the Taihe Dian are the finest specimens of this flowering of Greek temple architecture and CCA.

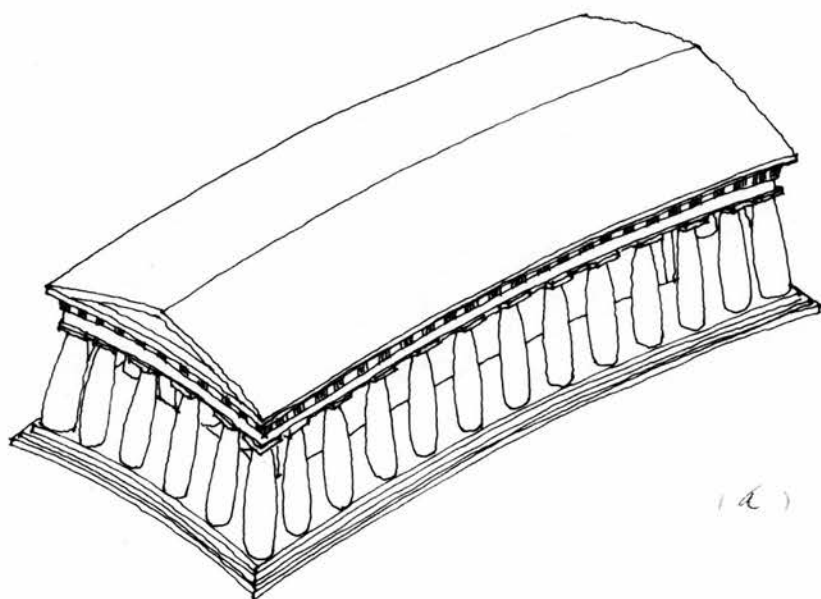
Refinement is one of the most important ingredients in the treatment of the exterior of classical buildings. In the Parthenon and the Taihe Dian it enabled the exteriors of the buildings to become more lively and vivid. It produced the most subtle variation in the exteriors of both buildings. However, what does refinement mean in the treatment of the exterior form? Some of the refinement in both the Parthenon and the Taihe Dian is rather similar. Comparing the treatment of the exteriors of both buildings, another question emerges. Why were there so many similar refinements used in two buildings from two different worlds ?

## **6.1 Refinement of the elevation**

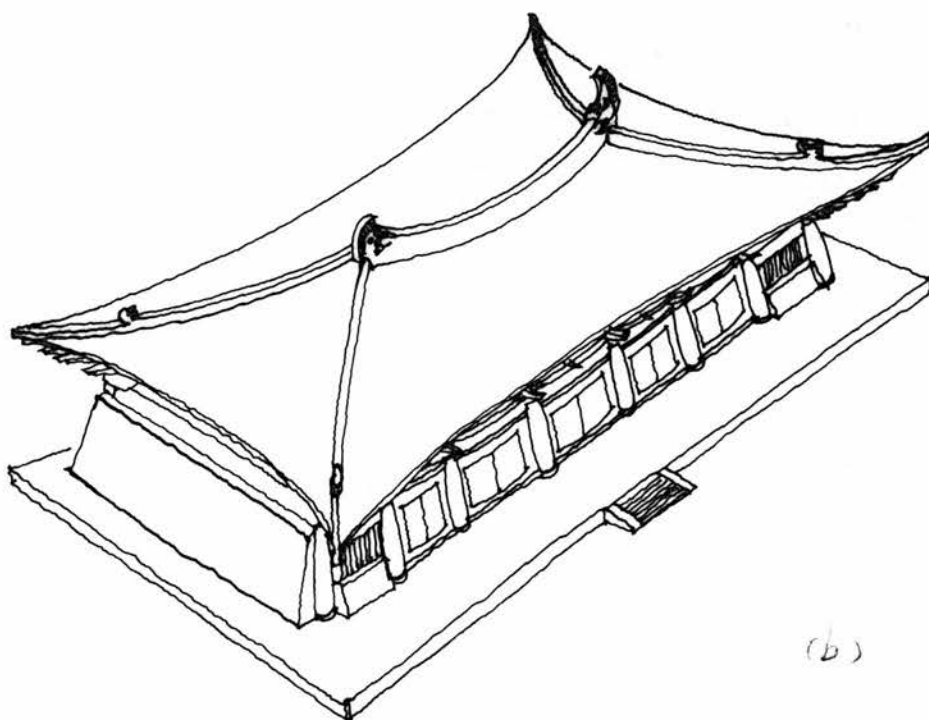
Apart from the mass, division and variations of the exterior form already mentioned in Chapter V several other refinements practised in Greek temple architecture and CCA must be mentioned.

### **6.1.1 Refinement in Greek temples**

Refinement of Greek temples is seen in the subtle treatment of the elements of the exterior form. From a study of the exterior form of the buildings of this time we find that there are very few portions of them which are exactly straight, perpendicular or horizontal, as is shown in figure 6.1a. In general, the lines which should be horizontal are actually curved upwards, while those which should be perpendicular slope inwards and upwards.



(a)



(b)

Figure 6.1. Refinement in CWA and CCA: (a) a Doric temple showing exaggerated refinements (drawing based on Boardman, J., 1985), and (b) exaggerated refinements in a building of CCA.

In Greece, the use of refinement reached its climax in the Acropolis in the middle of the fifth century BC. The buildings on the Acropolis were the most ambitious that the Greeks had ever attempted. Here, refinement testifies to the great artistic sensitivity of the builders. The Parthenon is the supreme exemplar.

In the Parthenon the long, horizontal, and apparently straight lines of such features as stylobates, architraves, and cornices, in reality sag in the middle, and have slightly convex outlines. The vertical lines are also neither straight nor perpendicular. The columns and walls all incline slightly inwards, and the columns have entasis, and taper noticeably. Refinement in the temple is seen in both horizontal and vertical lines:

#### **Horizontal lines:**

In the Parthenon the stylobate has an upward curvature towards its centre of 8.57 cm. on the east and west facades, and of 10.95 cm. on the lateral facades (fig.6.2). The architrave and entablature also rise at a gradient of 1:600 to the centre of each frontage. This subtle variation in the long horizontal lines is hardly to be appreciated at first glance. We can only assess the effect from a comparison between this temple and other temples which are without this treatment. To achieve this result in such a massive stone structure is extremely difficult for the builders. Some of the refinement in the temple is exquisite. For instance, the treads of the steps and the platform rise from each corner to the middle of the frontage. At the same time, there is also an inward and upward slant, so that the whole floor is very slightly domed, with its highest point at the centre of the building and its lowest points at the corners of the platform which means that the 'flat' floor actually varies by nearly 5 cm. in elevation.<sup>111</sup>

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<sup>111</sup> Lawrence, Alexander. W., *Greek Architecture*, (Penguin Books, Harmondsworth, 1967), pp173-174.

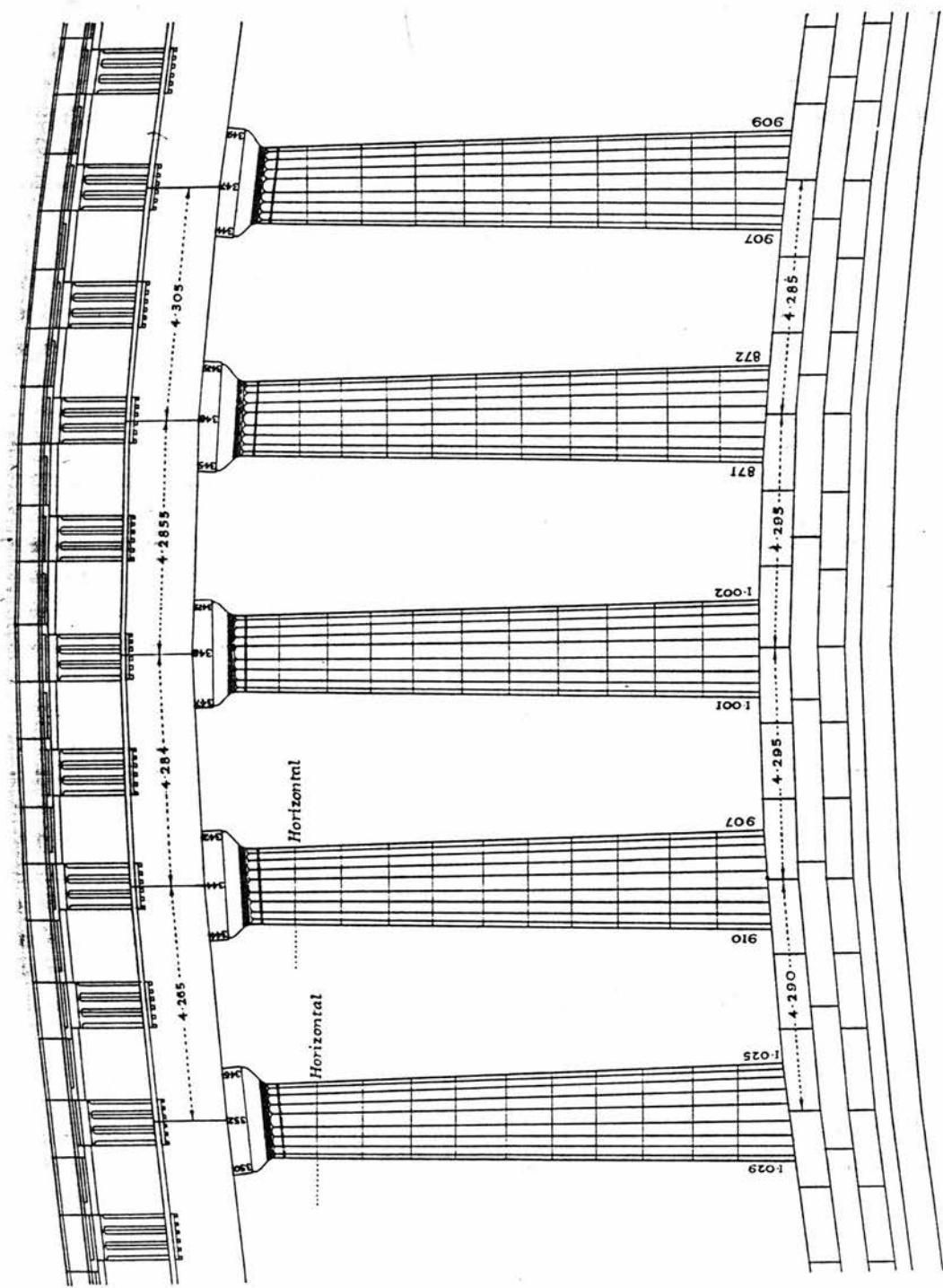


Figure 6.2. Diagram of exaggerated distortions in north colonnade of the Parthenon (from Lawrence, A., 1967).



### **Vertical lines:**

In Greek temples refinement used on vertical lines is mainly in the entasis and tapering of the columns, and in the slant of the columns and walls. In the Parthenon all four rows of the pteron columns slant inwards in a ratio of 1:150; and the side colonnades would actually meet if extended to a height of rather more than one mile. Following the columns, the pteron walls also incline slightly inwards. The corner columns have a diagonal slant in order to make it easy to align them with both rows, and they are slightly thicker than the rest. The vertical lines in the temple all incline slightly inwards, causing the axes of the corner columns to do this by as much as 8.57 cm. The shaft of the Doric column has a slight convexity of silhouette - as well as the usual upward tapering - the deviation amounting to 1.746 cm. in 9.45 m.<sup>112</sup> An inward slant of vertical lines is also applied in some less detectable ways to the architraves and friezes, which slant inwards by 1: 80, and even to the steps, although the inclination is at the rate of only 1:250.

However, the most noticeable among these intentional distortions in the Parthenon is the entasis and tapering of the column shafts. At its maximum, the divergence from the perpendicular is barely more than two-thirds of an inch; and at a casual glance the shafts are tapered regularly upwards with straight sides (fig.6.3b). The lower diameter is actually 110 times as great as the maximum divergence of the entasis, and the height of the column is 552 times as great.<sup>113</sup>

The entasis in the Parthenon had become unnoticeable, compared with that of earlier buildings, such as the 'Basilica' at Paestum. Figure 6.3a shows a column from the 'Basilica' The shaft here bulges at the middle, giving it a shuttle-shape. The shaft tapers obtrusively at

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<sup>112</sup> Fletcher, Banister, *Sir Banister Fletcher's a History of Architecture*, (the 17th revised edition, ed. R.A.Cordingley), (The Athlone Press, London, 1961), p94.

<sup>113</sup> Lawrence, Alexander. W., *Greek Architecture*, (Penguin Books, Harmondsworth, 1967), p170.

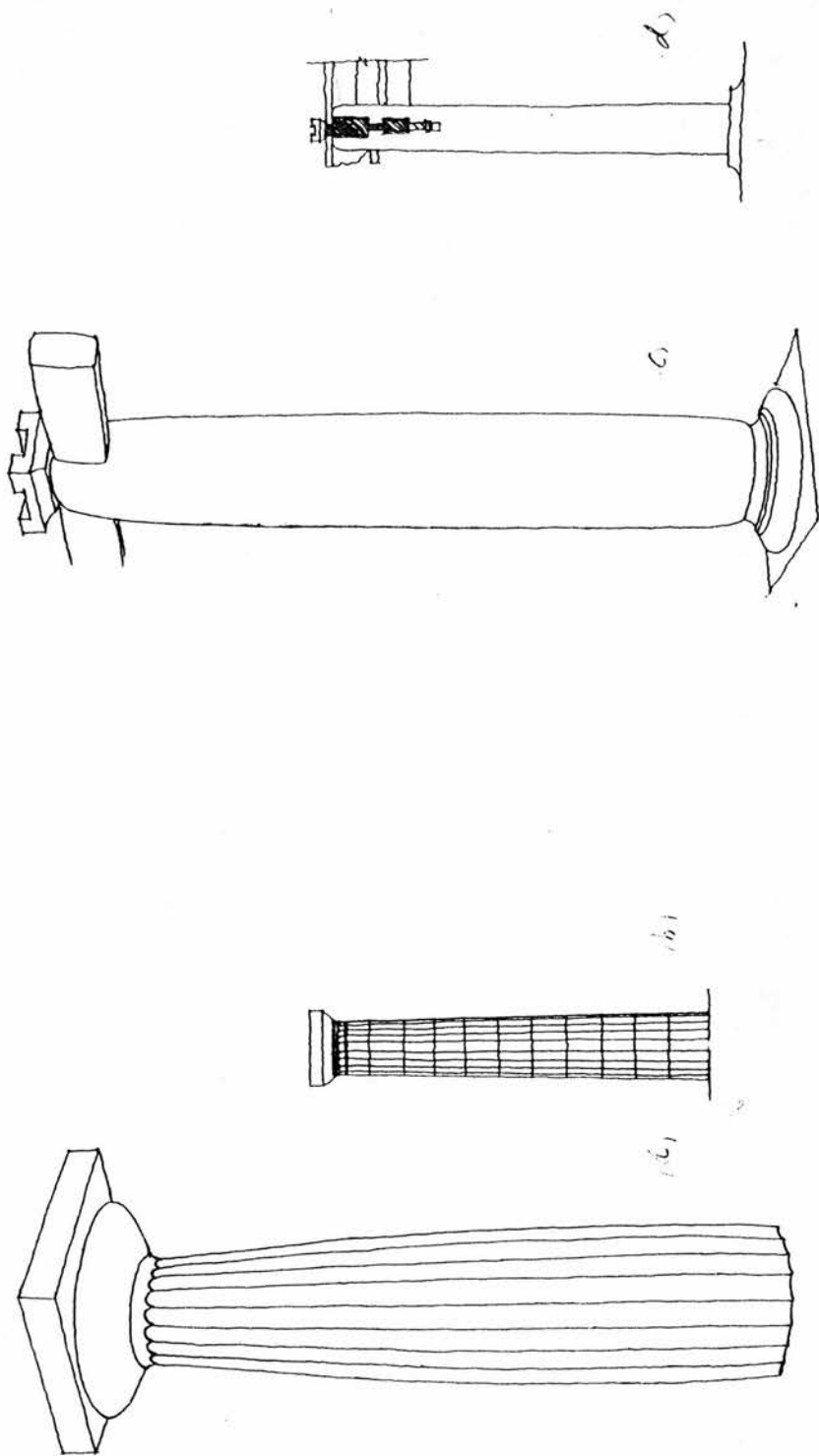


Figure 6.3. Refinements in columns in both CWA and CCA: (a) 'Basilica' at Paestum, (b) Parthenon, (c) from the Building Standard of the Song, and (d) Taihe Dian.

the top and its sides curve very noticeably, diverging 5.4 cm. from the straight. The foot of the shaft also has entasis.

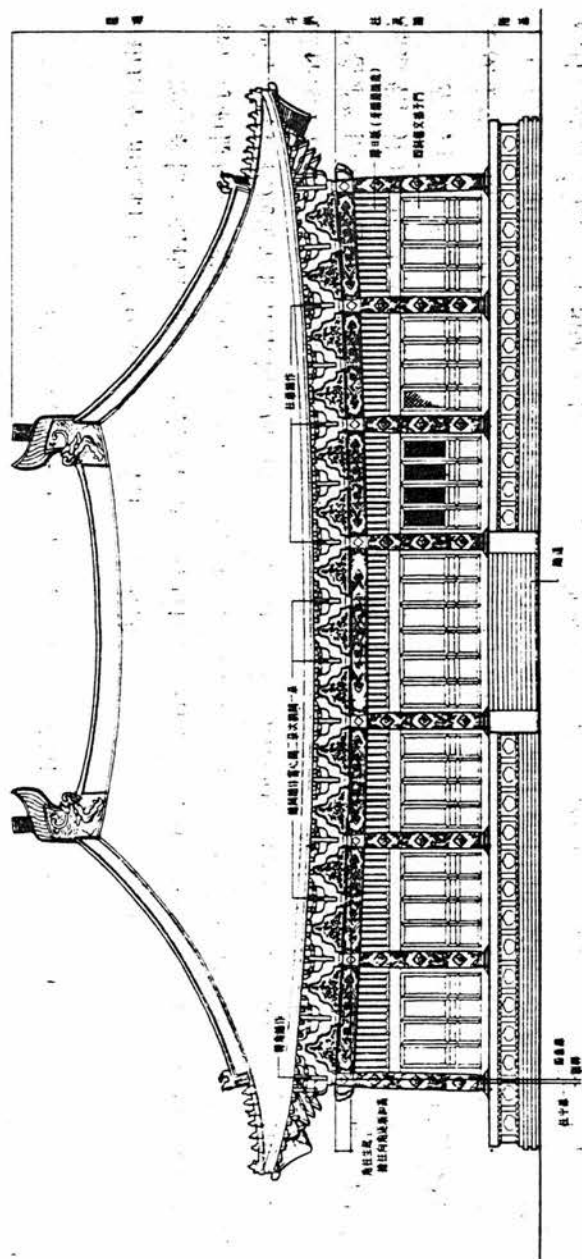
### 6.1.2 Refinement in the buildings of CCA

The use of refinement in CCA is mainly seen in the curved ridges and eaves, the taper and entasis of the columns, and in the inclined walls and columns. In general, as with Greek temples, there are no straight, horizontal and vertical lines in the buildings in CCA.

The greatest achievement in refinement in CCA came during the *Tang dynasty* 唐朝 (618-907) and the *Song dynasty* 宋朝 (960-1279). The main hall of the *Foguang Temple* 佛光寺 at *Wutai Shan* 五台山, *Shanxi* 山西 Province, is the supreme exemplar (fig.6.1b). In this temple we can see that:

1. The horizontal ridge is convex in shape and sags in the middle; and the eaves turn gradually upwards and outwards from the middle towards the corners.
2. The columns have a noticeable entasis, and the walls are tapered.
3. All the columns incline inwards.
4. A gradual increase in the height of the columns from the central bay towards the corners enables the architrave to form a curvature suited to the curved eaves.

During the *Song dynasty* 宋朝 (960-1279) refinement became regular practice in CCA. In the Building Standard of the *Song* 宋, refinement was described as an important part of the art, and the treatment of refinement was set forth and illustrated. Figure 6.4 shows an elevation of a seven-bay hall restored according to the Building Standard of the *Song* 宋. The main ridge and sloping ridges are convex and rise upwards from the centre towards the two ends. Correspondingly, the eaves rise upwards and outwards from the centre towards the corners. The beams under the eaves also turn upwards towards the corners because of



宋《营造法式》立面处理示意图

Figure 6.4. Elevation of Chinese temple or palace according to the Building Standard of the Song (from Liu, D.Z., 1980).

the rise in height of the front columns from the central bay towards the corners. But its platform seems to be flat. All the 'vertical' columns incline inwards, and the entasis and tapering of the columns and walls are noticeable.

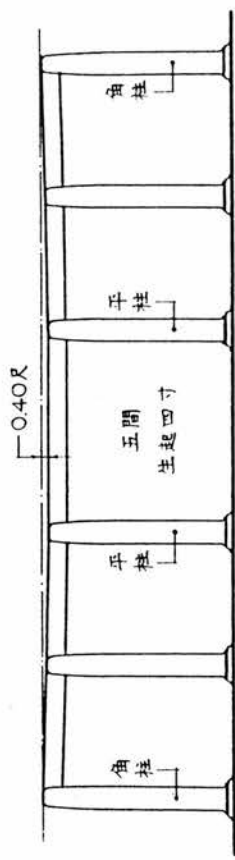
Comparing the refinement in this building of the *Song* 宋 with that in the main hall of the *Foguang Temple* 佛光寺, we find that there are some little differences. For instance, the curvature in the main ridge and eaves is more obvious in the case of the *Song* 宋. However, all these modifications in refinement help to give the building an air of stability, revelation and liveliness.

In the *Taihe Dian*, refinement is seen in its long curved eaves which turn upwards and outwards gently at each corner; in the columns which incline slightly inwards, and taper; and in the thick walls which are also tapered. These refinements greatly improve the appearance of the building, and help to give an illusion of liveliness to its grand mass and structure. As is the case in Greek temples, refinement in CCA is seen in both horizontal and vertical lines:

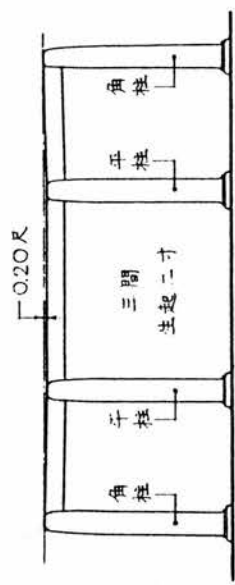
#### **Horizontal lines:**

According to the Building Standard of the *Song* 宋, the columns must increase in height from the central bay towards the four corners (fig.6.5), called *shenqi* 升起. In the case of a three-bay hall, the corner columns rise two *cun* 寸 (the *Song* unit for measuring the length, roughly, 1 *cun* = 3.3 cm.) more than the ones of the central bay (fig.6.5b); in a five-bay hall they rise four *cun* 寸; in a seven-bay hall six *cun*; in a nine-bay hall eight *cun* 寸, and in an eleven-bay hall one *chi* 尺 (= 10 *cun*) (fig.6.5c). Following this arrangement, the lintels or architraves rise gradually from the central bay towards the corners, and form a convex line. The beams and purlins beyond the architraves keep pace, and, finally, form a curved 'horizontal' ridge at the apex.

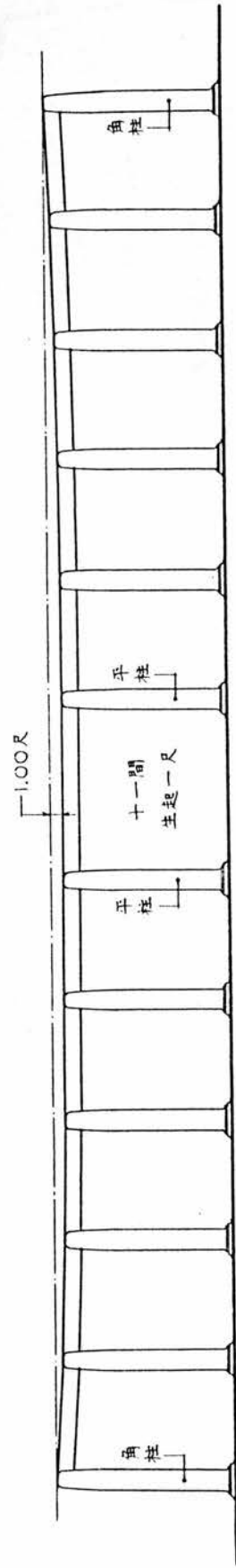
In the *Ming* 明 and *Qing* 清 dynasties, some treatments had been discontinued. For instance, the columns in the *Taihe Dian* are equal in height



(a)



(b)



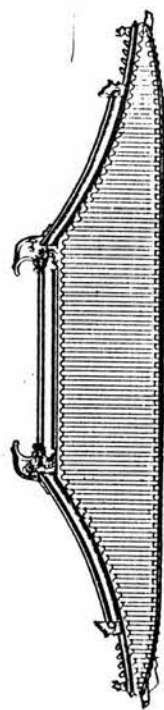
(c)

Figure 6.5. Diagram of exaggerated colonnades in CCA of the Song.



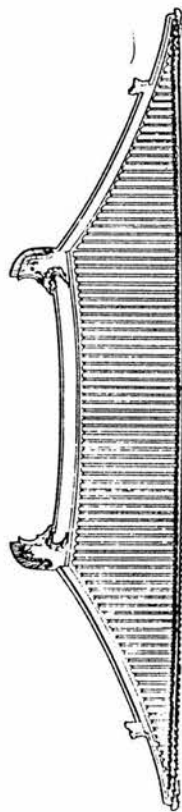
(fig.6.6c), so that the horizontal ridge becomes a straight line instead of the curved one found in the buildings of the Tang *dynasty* 唐朝 and the Song *dynasty* 宋朝. It is a major change in shape. The most important refinement in CCA is perhaps the curved roof and eave. In figure 6.6 we see that the eaves of the Song 宋 examples form a convex line. The curvature of the eaves seems parallel with that of the 'horizontal' and sloping ridge. In the Song 宋, the curvature in the 'horizontal' ridge was associated with that of the sloping ridges, which means that it is associated with the inclination and curvature of the roof (fig.6.6b). This characteristic has also been found in the main hall of the *Foguang Temple* 佛光寺 (fig.6.6a)

The curved overhanging roofs in CCA meet at the ridges, which naturally form a curve. The lower ends of the sloping ridges, supported by a large corner beam, turn upwards and meet the two rising corner eaves at the end. According to the principles and illustrations given by the Building Standard of the Song, the parallel rafters following the rising beams (fig.6.7b), protrude outwards from the tops of the beams (fig.6.7a), and at the corners turn gradually and spread outwards and upwards at nearly 45 degrees, finally meeting with the corner beam. The termination of these overhanging rafters - the end-eave tiles - forms a curved line which turns gradually upwards from the central bay towards the corners. In figure 6.7b we can see that a block of the triangular element is placed upon the raising beams. Thus the curved eaves towards the corner will rise more steeply because of the overhanging rafters. An overhanging beam extends from the large corner beam and turns upwards and outwards to the junction of the two rising sets of eaves. At the same time, the overhanging rafters increase in length from the central bay towards the corner, so that the curved eaves appear to turn upwards and outwards from the central bay towards the corners (fig.6.7a). The corners do not form a right-angle; for the eaves curve gradually outwards from the second terminal bay, and



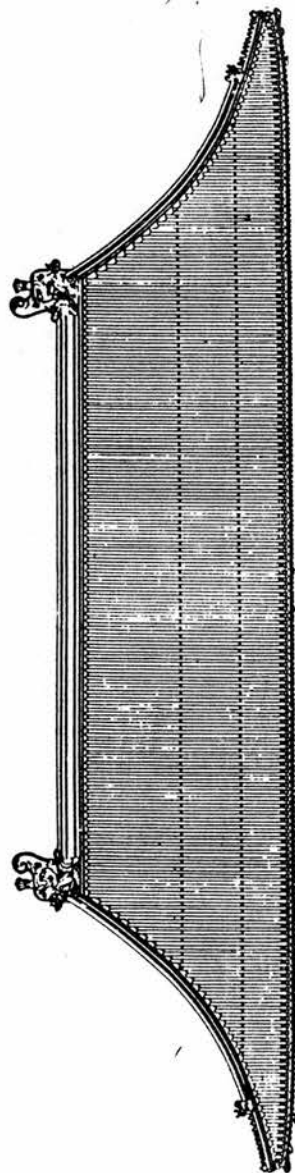
*The roof of the gate-house  
of the Dule Temple.*

(a)



*The roof of the main hall  
of the Foguang Temple.*

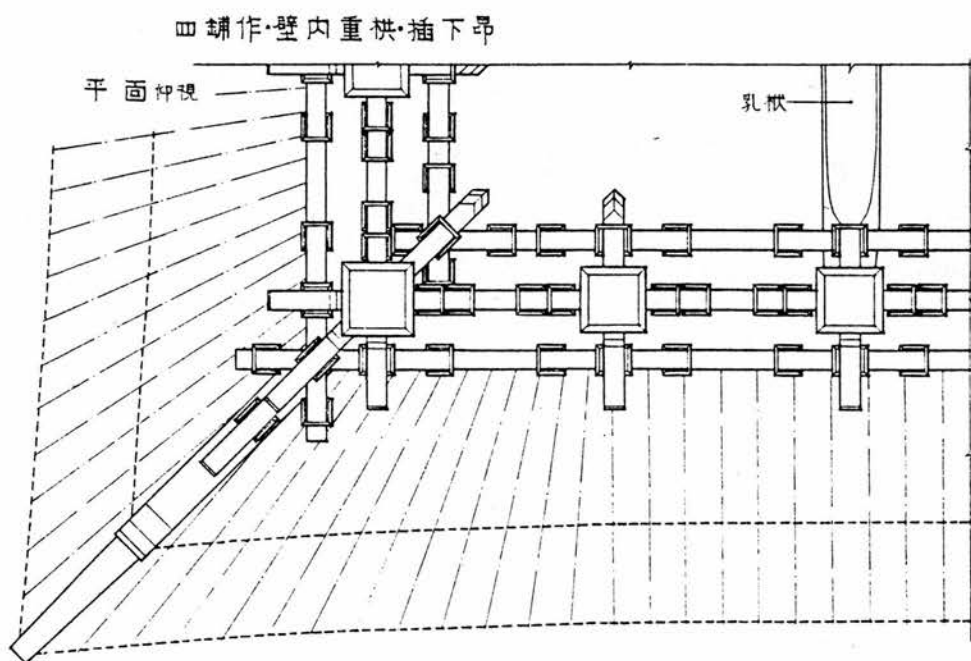
(b)



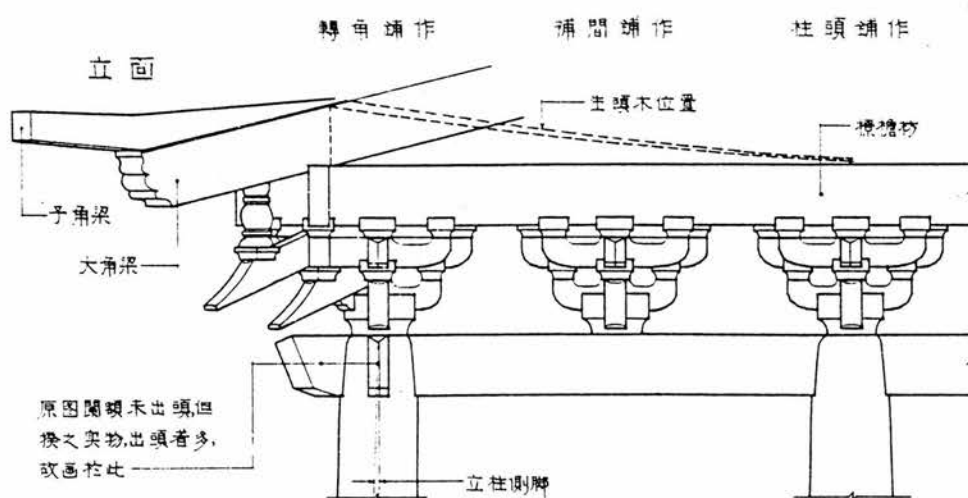
*The roof of the Taihe Dian.*

(c)

Figure 6.6. Curved eaves in CCA: (a) the gate-house of the Dule Temple 獨樂寺, (b) the main hall of the Foguang Temple 佛光寺, and (c) Taihe Dian.



a



b

Figure 6.7. Treatment of corner-eave in CCA of the *Song* (from Liang, S.C., 1983): (a) section of eave (the tops of the beams), and (b) section of corner-eave.

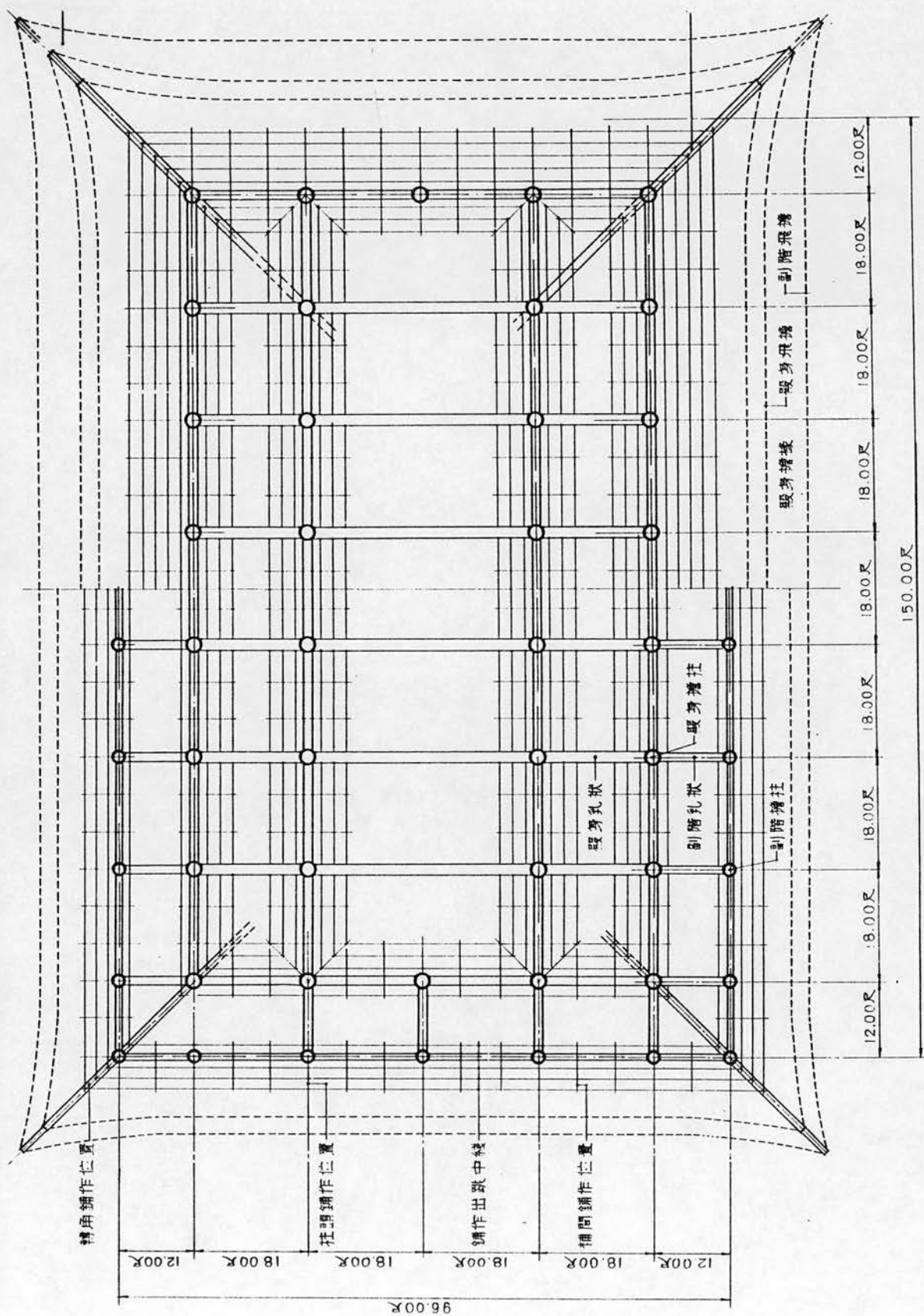


Figure 6.8. Sections of roof in CCA of the Song (from Liang, S.C., 1983).

finally fuse with the end of the corner beam (fig.6.8). The degree of curvature of the eaves has been laid down in the treatise.

### **Vertical lines:**

In the Taihe Dian all the columns slant inwards, as in the main hall of the *Foguang Temple* 佛光寺, where the inclination is about 1:100. In the Building Standard of the *Song*, this treatment is called *cejiao* 側角. According to this treatise, the columns must incline slightly inwards; and each one *chi* 尺 slants one *fen* 分 (inclination about 1:100, fig.6.9). It also mentions that in order to let the columns stand firmly, the top and the bottom of the column must be made flat, and parallel with the floor.

In the case of the main hall of the *Foguang Temple* 佛光寺, the columns are noticeably shuttle-shaped, the upper and lower part of the shaft having an entasis. During the *Tang* and the *Song*, as in the case of the columns dealt with in the Building Standard of the *Song*, the entasis and taper in the column is emphasised, and the column swells in a noticeable shuttle-shape (fig.6.10), as do those in the 'Basilica' at Paestum.

In the Building Standard of the *Song* entasis is called *sha* 殺. Figure 6.3c shows a column which is featured in this treatise, and whose shaft is noticeably shuttle-shaped. According to the rules laid down in the treatise, the column is divided into three sections (fig.6.10a). The upper third gets gradually narrower as it rises, the middle third remains straight-sided, and the lower third has a little entasis (in some cases it remains as straight as the middle part of the shaft). The upper third is subdivided into three again: its upper third being entasised inwards by 4 *fen* 分 (the measuring unit of the *Song*), and the lower and the middle thirds by 1 *fen* 分 (fig.6.10b).

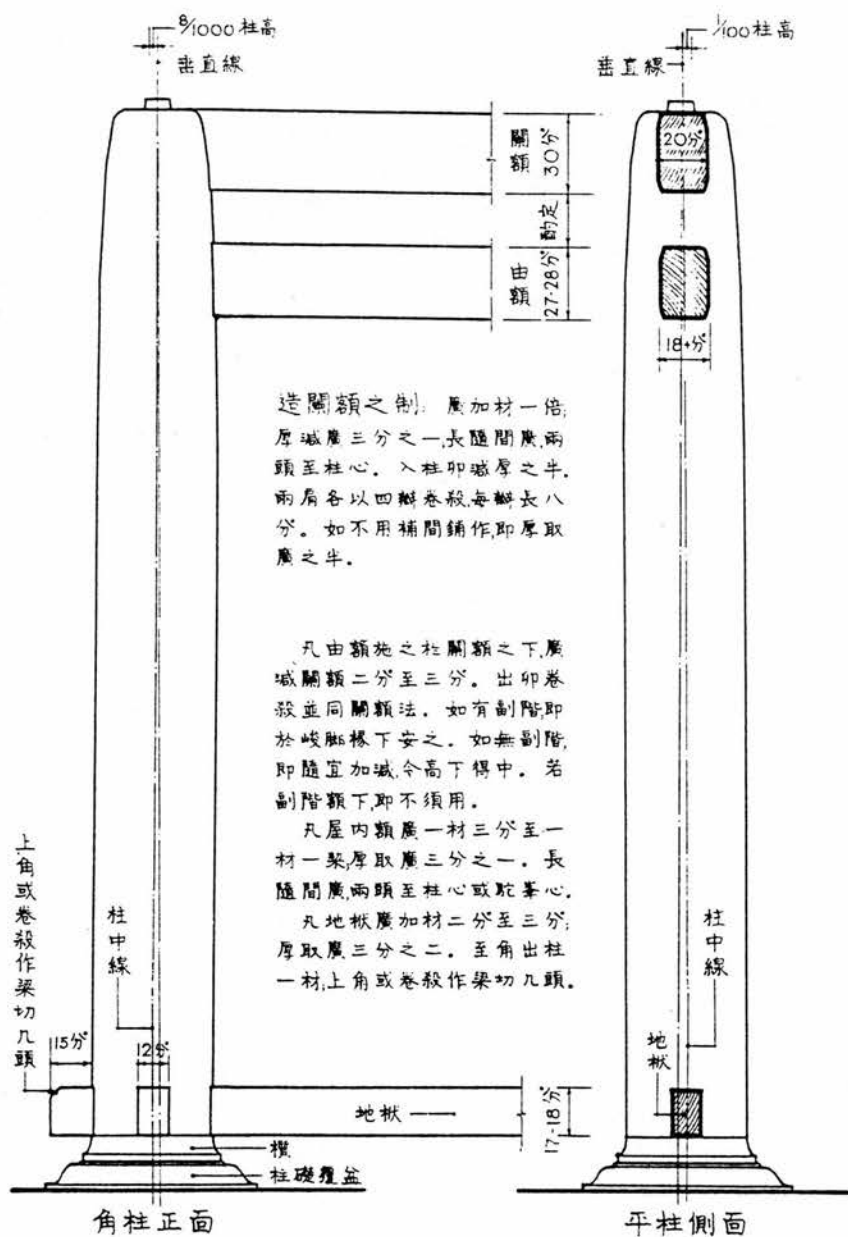


Figure 6.9. Refinement in the columns of the Building Standard of the Song (from Liang, S.C., 1983).



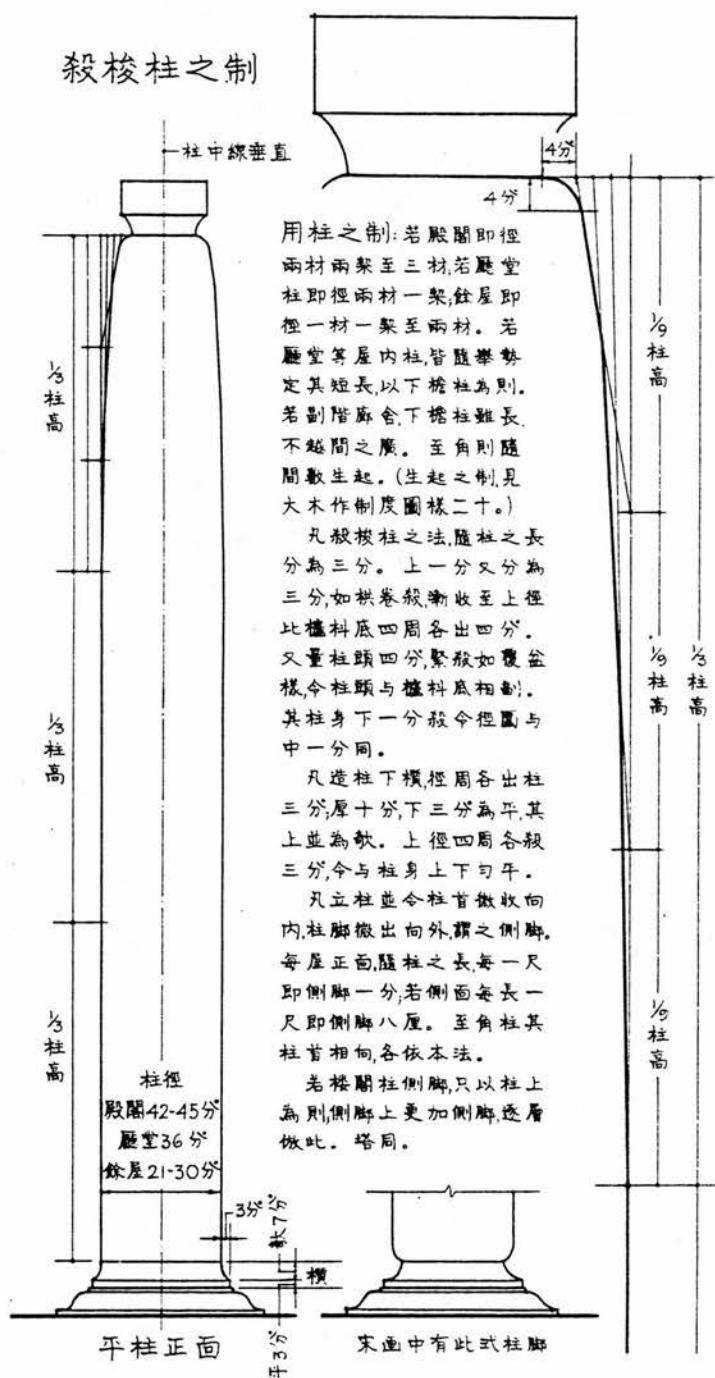


Figure 6.10. Entasis of the columns from the Building Standard of the *Song* (from Liang, S.C., 1983).

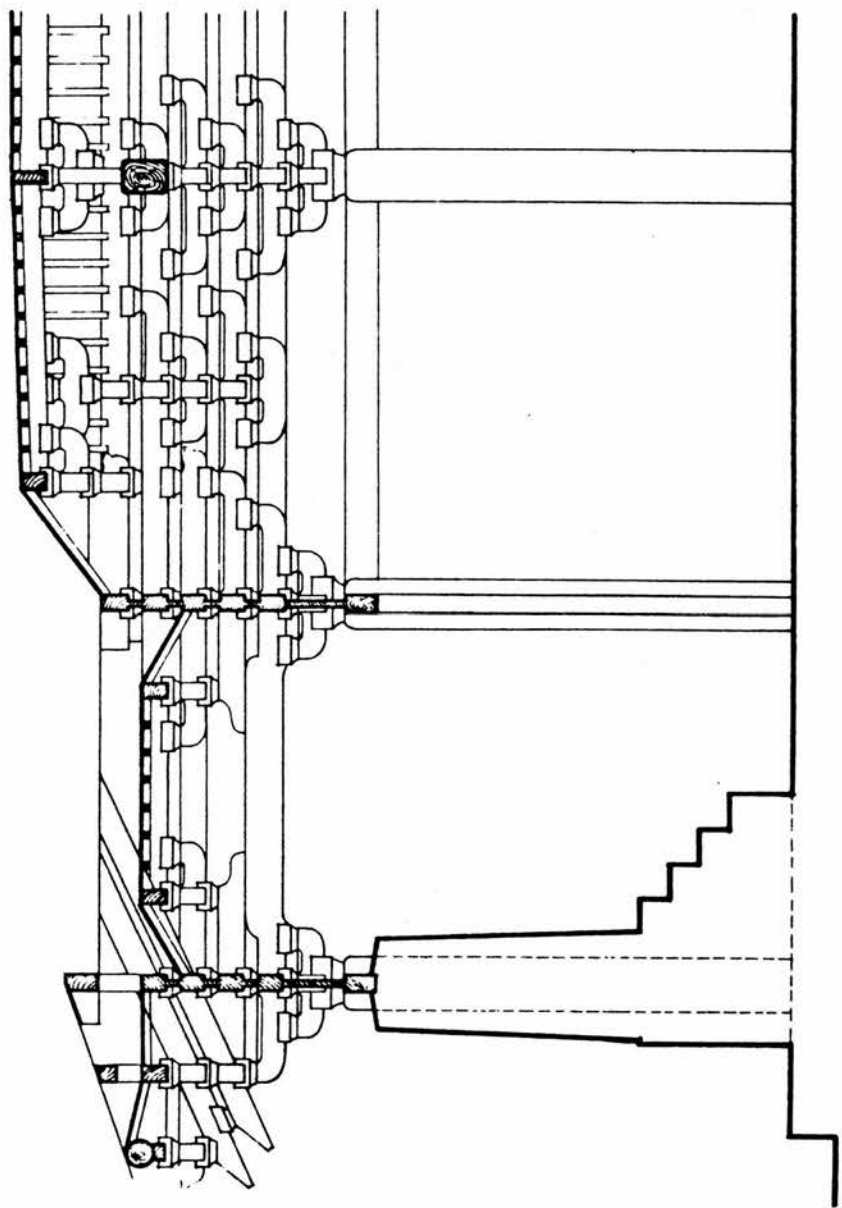


Figure 6.11. Section of the main hall of the *Foguang Temple* 佛光寺 (from Liang, S.C., 1983).

In the case of the Taihe Dian, the middle section of the curved eaves forms an almost straight line; but finally they turn upwards and outwards towards the corners (fig.6.6c). The treatment of entasis in the columns had been replaced by an imperceptible tapering (fig.6.3d). One may find a little entasis on the column-head, but it is different from the entasis in the *Song dynasty* 宋朝 (960-1279). Figure 5.12 shows a comparison of the refinement in the columns of the *Song dynasty* 宋朝 and the *Ming dynasty* 明朝 (1363 - 1644). The difference is obvious. The outline of the *Song* 宋 column is soft and elegant, in contrast with the straight and stiff column of the *Ming* 明. The change that took place between the *Tang dynasty* 唐朝 (618-907) to the *Qing dynasty* 清朝 (1644-1911) is slow and gradual.

Another noticeable refinement in CCA is the tapering of the walls. Figure 6.11 shows the section of the thick walls of the main hall of the *Foguang Temple* 佛光寺. The wall is tapered sharply upwards; and at the top of the wall on both the interior and the exterior side, there is a slanting plane as the termination of the wall. This treatment became more emphasised in the gate-house of the *Dule Temple* 獨樂寺 (the temple of Unique Happiness) at *Jixian* 薊縣, *Hebei* 河北. The tapering of the thick walls of the Taihe Dian is also noticeable, particularly when viewed from the side. The large, massive walls, with this tapering, help to give the building a strong and stable appearance, and make it mountain-like.

In both CWA and CCA refinement is practised mainly in the subtle variations of horizontal and vertical lines. The refinement of columns in both architectures comes from the same idea. The following diagram shows a comparison of the refinement of the Parthenon with that of the Taihe Dian:

Parthenon	Taihe Dian
<p>Horizontal line:</p> <p>The stylobate has an upward curvature towards its centre to a peak of 8.57 cm. on the gable sides and 10.95 cm. on the flanks. The architraves run parallel to the curvature of the stylobate.</p>	<p>Horizontal line:</p> <p>The eaves have an upward curvature from the centre bay towards the corners.</p>
<p>Vertical line:</p> <p>The pteron columns slant slightly inwards with an inclination of about 1:150, and taper, with a deviation amounting to 1.746 cm. Entasis is used in the columns.</p>	<p>Vertical line:</p> <p>The columns all slant inwards by about 1:100 and taper slightly.</p>

Refinement in Greek temple architecture and CCA may not be exactly the same. For instance, the long horizontal lines in the Parthenon curve downwards from the middle to the corners; but in the Taihe Dian the opposite applies, and the curvature is upwards from the middle towards the corners. However, both kinds of treatment have a similar intention. In general, refinement in both the Parthenon and the Taihe Dian is effected by subtle means, such as small, unexpected variations from the vertical, the horizontal or the rectilinear.

## 6.2 Refinement and the qualities of the dedicatee

### 6.2.1 The cult statue of the dedicatee

We have said that the cult statue placed inside the Parthenon is a symbolic representation of its dedicatee, as is the exterior form of the temple. In other words, both the cult statue

and the building express certain qualities of the dedicatee, one in sculpture and the other in architecture. In the case of the Taihe Dian, the qualities of the dedicatee are expressed in a ceremonially dressed seated emperor (instead a cult statue), and in the exterior form of the great hall.

In Greece, there was a roughly parallel development in both sculpture and architecture. At the time when Greek temple architecture reached its climax, at about the time of the building of the Parthenon, Greek sculpture also approached its peak. This was also the case in China.

We observe that the words used to describe the qualities of the dedicatee represented in both the cult statue and in the exterior form of the classical building are rather similar (table 5.2); and that means that the same things are expressed in the cult statue inside building and in the exterior form of the building itself. This tells us that these two representations of the dedicatee may express the same aesthetic intention. A common divinity is portrayed in the statue, the seated emperor, the temple and the hall.

The similarity of aesthetic intention in the cult statue of the dedicatee and in the exterior form of the building reveals the reason for refinement in both CWA and CCA. Figure 6.12 shows that the shape of Doric and Ionic columns is associated with male and female bodies. Doric columns rest heavily on the ground without a base, and their swollen, fluted shafts seem to embody masculine, muscular strength. The Ionic column rests on an articulated base, and the slender shaft ends under a voluted capital. Instead of muscular force, the Ionic order embodies feminine grace and beauty.<sup>114</sup> The characteristics found in the Doric and Ionic Orders can also be found in the cult statues of the dedicatees. This situation reveals a link between the treatment of the exterior form of the temple and the cult image of the dedicatee.

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<sup>114</sup> Norberg-Schulz, Christian, *Meaning in Western Architecture*, (Studio Vista, London, 1975), p55.

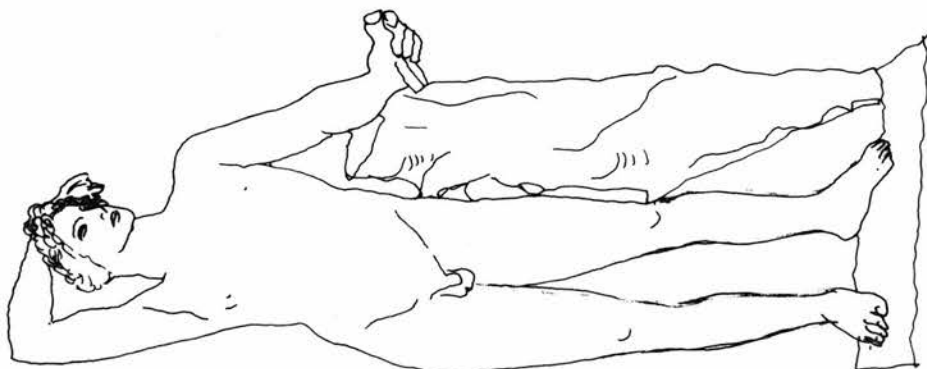
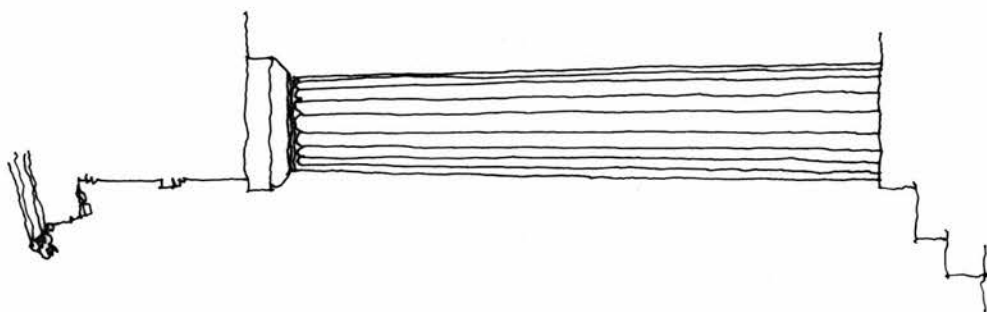
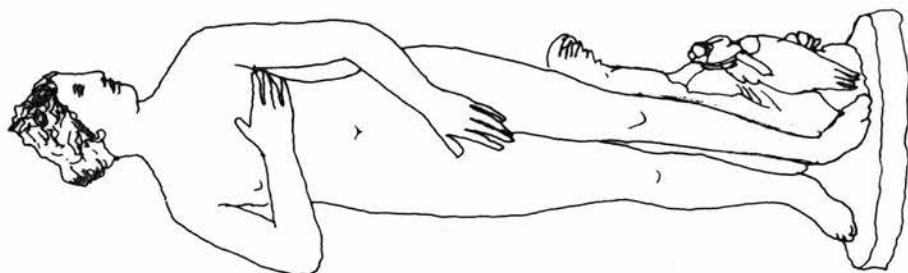
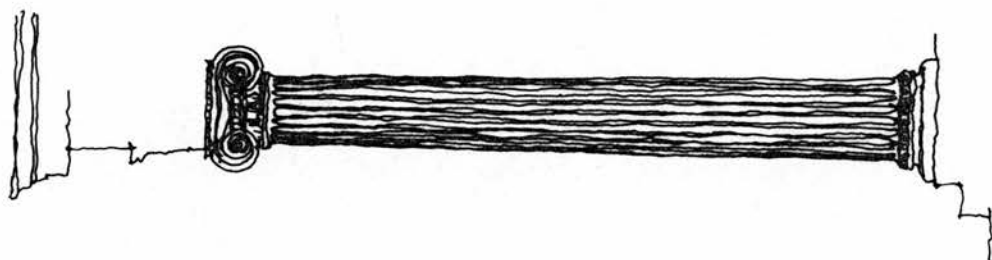


Figure 6.12. Greek Doric and Ionic columns and figures.



We use some words in describing both the cult statue of the dedicatee and the exterior form of the building, such as elegance, softness and stiffness. In fact, these words describe certain qualities of a cult image of the dedicatee. These qualities are expressed in the refined exterior form in both CWA and CCA.

### 6.2.2 The refined exterior form

Traditionally, most scholars have explained refinement as being due to the requirements of the structure and to the need for optical corrections rather than for an expressive purpose. For instance, it is generally agreed that inward-slanting columns can strengthen the structure. Vitruvius believed that refinement can help to counteract optical illusions. He explained that if someone stands in front of a perpendicular building, and two imaginary lines are drawn from his eyes, one to the lowest part of the structure and the other to the highest, the line of vision to the upper part will be longer, and this will give the building the appearance of leaning backwards. But in fact the refinement in the Parthenon and the Taihe Dian perhaps extends far beyond the requirements of structure and optical correction. It seems clear that refinement has an aesthetic and expressive purpose.

Let us return to the treatment of refinement in both the Parthenon and the Taihe Dian. Comparing the five Greek columns in figure 5.8, we can see that the differences between them are in their proportions and curvature. The different proportions and curvature produce slightly different appearances. From the entasis of the column from the 'Basilica' at Paestum, we get an impression of softness and fullness. How different this is, we feel, from the stiff perfection of the Parthenon. Similarly, we find an elegance, softness and fullness in the column detailed in the Building Standard of the *Song*, in contrast with the rigid perfection of a column from the Taihe Dian.

A graceful horizontal ridge is slightly curved and responds to the curvature of the eave, in the *Tang* examples (fig.6.6b), in contrast to the straight and stiff horizontal ridge in the

Taihe Dian (fig.6.6c) and in the other *Ming* 明 and *Qing* 清 examples, where the big sweeping roofs spread out wide, and the corner eaves are turned up in a convex line representing something light-hearted. Looking at the curvature of the corner eaves in the gate-house of the *Dule Temple* 獨樂寺 (fig.6.6a), we find that the building is rendered lively and elegant by this refinement, with its corners turned up in an archaic shape. These subtle touches doubtlessly make the colossal overhanging roof feel less heavy. Comparing the three roofs in figure (fig.6.6), the real difference between them is neither in the structure, nor in the presence or absence of optical illusion, but in form and effect.

Refinement in CWA and CCA deals with the more delicate subjects. Some of the most exquisite qualities of a cult image of the dedicatee are represented in slightly curved lines and in the use of entasis and tapering of the columns. Both Greek temples and the buildings in CCA have approached this deep level.

Some Chinese scholars, including *Liang Sicheng* 梁思成 and *Liu Dunzhen* 劉敦楨, divide the development of CCA from the *Han dynasty* 漢朝 (206BC-AD263) to the *Qing dynasty* 清朝 (1644-1911) into four major periods according to style:

1. The *Han dynasty* 漢朝 (206BC-AD263), the period of simplicity and roughness:

CCA in the *Han* was simple and rough in its treatment of the exterior form of the buildings. This is reflected in its wide, spreading roof, without curve; thick column and large bracket-set; and the simple outline and roughness of the architectural decoration.

2. The *Tang dynasty* 唐朝 (618-907), the period of vigour:

CCA in this period was characterised by a robustness of proportion and construction which must have been a reflection of the glorious *Tang dynasty* 唐朝 and a natural concomitant of it.<sup>115</sup> The gentle curved roof and ridge, with

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115 Liang, Sicheng, *A Pictorial History of Chinese Architecture: a Study of the Development of its Structural System and the Evolution of its types*, (MIT Press, Cambridge, Mass and London, 1984), p37.

their curved eaves; the large bracket-set; the thick walls painted red; and the simple platform are the main characteristics of the exterior form in CCA of this period.

3. The *Song dynasty* 宋朝 (960-1279), the period of elegance:

The form of the buildings is extremely elegant, and is marked by a gracefulness of proportion and refinement of detail.<sup>116</sup> In particular, it is noted for the refinement of the decorations. The curved roofs are very striking and the curvature of their profile is elegant and gentle. Refinement had by this time become one of the main features of a building.

4. The *Ming dynasty* 明朝 (1363 - 1644) and the *Qing dynasty* 清朝 (1644-1911), the periods of rigidity and magnificence:

One uses 'rigidity' here in the context of a comparison of the products of this period with those of earlier times. These buildings were marked by a clumsiness of proportion resulting from the excessive size (compared with the size of the building) of the bracket sets, resulting in an increase in the number of intermediate sets.<sup>117</sup> Expression in this period has a rigidity and seriousness in place of the *Tang's* vigour and the *Song's* elegance. This is reflected in the treatment of the Taihe Dian. The roof occupies 2/3 of the height of the elevations; the curve of the profile of the roof becomes steeper more gradually than before; the columns are slender; the main ridge in this case forms a straight, horizontal line; the middle points of the long eaves form a straight line; the columns are equal in height; and entasis has disappeared. But its bright colours, magnificent details, and colossal frame and terraces reflect the magnificence of the time.

The four periods lasted for about two thousand years, and each of them occupies roughly five hundred years. However, it is hard to do justice to the movements in CCA by using such simple words. It just gives an idea of the style of the exterior form of the buildings

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<sup>116</sup> Ibid.

<sup>117</sup> Ibid.

in the different periods.<sup>118</sup> In fact, in the course of these four periods, the exterior form in CCA varied slightly in its inclination, curvature and proportion, and especially in its refinement. The curvatures of the roofs and columns, for instance, are different in each period, but very similar in contemporary buildings. When we describe the exteriors of classical buildings of different periods, for example, we may have to start from their differences and similarities of refinement during the same period. Similarity of refinement was the result of the builders' similar understanding of the qualities of the dedicatee.

### 6.3 Conclusion

Refinement of the exterior form is one of the most important characteristics of Greek temples and of the buildings in CCA. Together with variations of the inclination, curvature and proportion of the exterior form, the different refinements produce an appearance ranging from softness to stiffness, from liveliness to seriousness, and from roughness to exquisiteness. This is the result of an aesthetic intention and an expressive purpose. Subtle variations in both horizontal and vertical lines make the appearance of the buildings more lively and vivid.

In Greek temples refinement is seen mainly in the entasis and tapering of columns. The three different Orders - Doric, Ionic and Corinthian - have their own standards of entasis and tapering. The same standard of refinement is employed in the same class of building. In CCA refinement is used chiefly on the roof, columns and walls. The curved ridges and eaves of a building also produce a most lively and vivid effect. Entasis and tapering in the columns and walls are also an important refinement.

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<sup>118</sup> "This division into periods is, of course, fairly arbitrary. It is impossible to draw a line of demarcation to separate the imperceptible steps in the process of evolution. Thus a building of an early date may be found heralding a new style or feature, or, in regions far from the cultural and political centres, a late structure may tenaciously cling to a bygone tradition. A generous margin must be allowed for the overlapping of the periods." Ibid.

Some refinements in the Parthenon and in the Taihe Dian are similar. We suggest that the exterior form of the two buildings express some of the qualities of the dedicatees. On this hypothesis refinement also expresses certain qualities of the dedicatee. The practice of refinement is closely connected with an expressive purpose. In addition to the mass, inclination, curvature and proportions of the elements of the exterior form, some of the finest qualities of the dedicatee are expressed in those subtle details of architectural treatment, such as the slightly curved horizontal lines, the entasis and tapering of the columns, and the inclination inwards and upwards of the columns and walls. Only classical architectures approach this deep level of expression, which is the result of many generations of trial and error, and improvement.

## **CHAPTER VII**

# **DECORATION AND COMMUNICATION**

After examining the meaning of location, horizontal axis, centripetal theme, exterior form and refinement in the Parthenon and in the Taihe Dian, we turn to the treatment of decoration in both buildings, and discuss the subjects expressed in the sculptures, reliefs and ornaments. As we shall see, the plan and method of decoration in both buildings is similar. Polychrome painted sculpture, relief and ornament are employed; and the placing of the decoration in the two buildings does not differ much. In both cases myths, legends and sacrifices are the main subjects, but they are portrayed in very different ways. We shall show that the subjects expressed in the decoration of both the Parthenon and the Taihe Dian are associated with the rituals, ceremonies and celebrations held in the buildings. The actions expressed in those polychrome painted sculptures, reliefs and ornaments have to do with the intention of communication between the builders and their gods, and between the three regions of heaven, earth and hell.



## 7.1 Decoration of Greek temples and of the buildings in CCA

### 7.1.1 Decoration of Greek temples

The decoration of Greek temples is located mainly on the pediments, the metopes, the frieze, the capital, the entablature, the doorways and the roof. By the middle of the fifth century BC, the use of decoration had achieved near-perfection; and treatment, as well as technique, had become almost unchangeable. We arrive at this view by a comparison of the decoration of some of the earlier Greek temples with that of the Parthenon.

The use of decoration in Greek temple architecture can be dated back to the earliest stages of Greek civilisation. In the palace at Cnossos (fig.1.2b), for instance, there was a frieze. Figure 7.1 shows the decorations in the tholos tomb, the Treasury of Atreus, at Mycenae (1250 BC). In this case, stylised ornaments have been applied on frieze, pediment, architrave and column. The shafts are ornamented in *zigzags*, with narrow strips of beading separating wider bands, which are alternately plain and carved, and with a Minoan pattern of connected spirals against a sunken background, the plain bands being fluted. At the top of the shaft there is a beaded collar beneath a cavetto moulding which is divided into rows of superimposed tongues pointing upwards. It seems that there are no differences between the ornaments used on the pediment, capital and entablature.

The technical processes of the earlier Greek decoration are identical with the Egyptian ones. With the great commerce and intercourse which were established between Greece and Egypt by the seventh century BC, the Greeks were sufficiently acquainted with all the arts of the Egyptians, and had learnt much from them.<sup>119</sup> Egyptian ornaments, such as the *zigzag* and the wave-scroll, were used in the decoration of some early Greek temples.

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<sup>119</sup> Wornum, Ralph Nicholson, *Analysis of Ornament: the Characteristics of Styles*, (Chapman & Hall, London, 1860), p45.

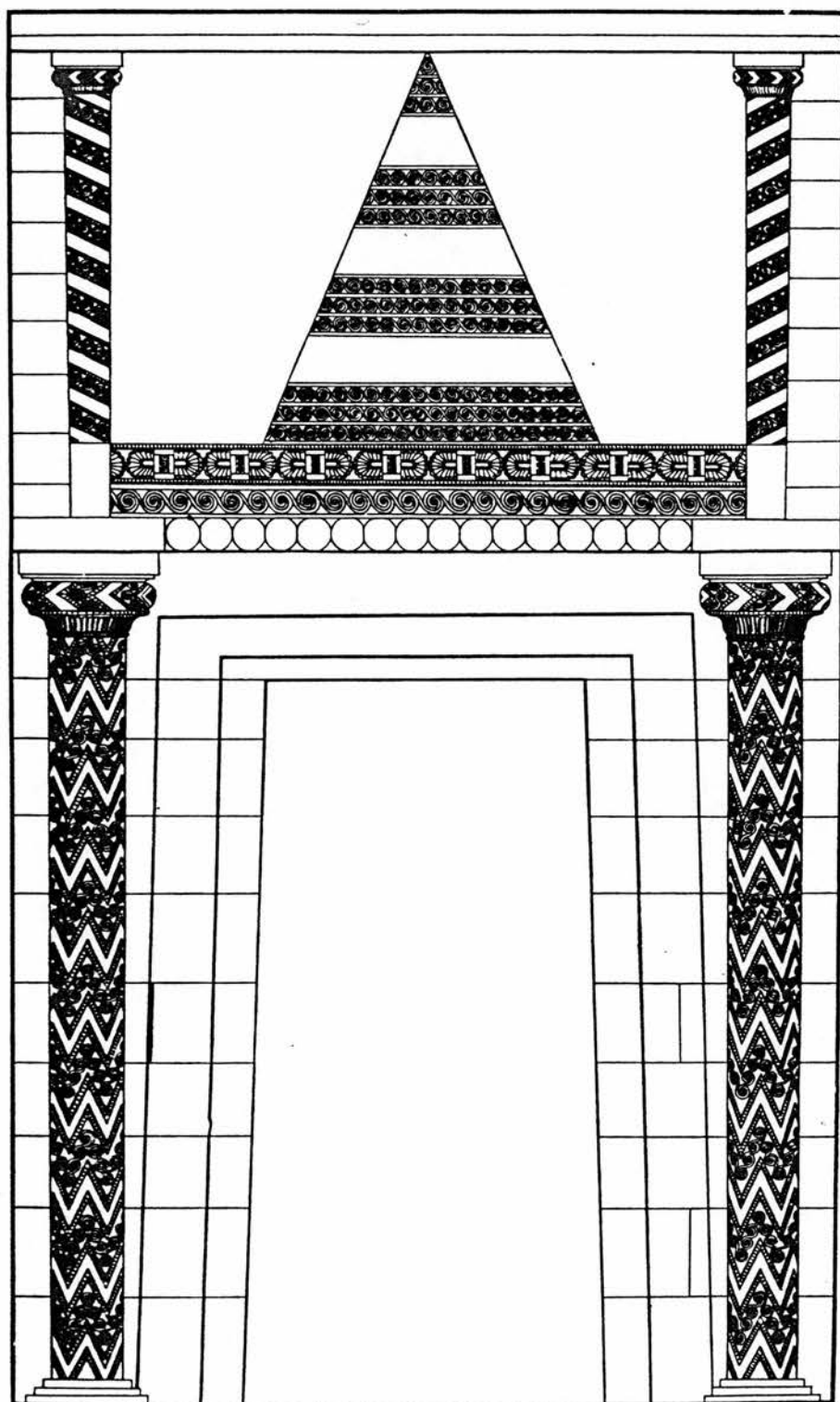


Figure 7.1. Elevation of the gate-way of the tholos tomb at Mycenae (from Lawrence, A., 1967).

By about 600 BC, the polychrome painted sculpture, relief and ornament employed in Greek temples had been stylised. Temple 'A' at Prinias (fig.1.3), for instance, used some stylised decoration of the sort we see in later buildings - sculptured acroteria, relieved friezes, and others. A pair of statues of seated goddesses have been placed confronting one another over the door-way to the cella; a frieze of animals done in relief decorates the side of the lintel; and there is a figure, also carved in relief, on the under side of the block of the door.<sup>120</sup> Here, the main decorations are sculpture and relief works, set off by ornaments which act as a frame.

In the Parthenon, a group of life-size sculptures is placed on each of the pediments of the two gable ends; the intersections of the marble roof-slabs above the cornice are masked by a carved ante fix and large floral acroteria; and relief is used on the frieze, which runs all the way round the exterior of the cella. Metope, triglyph and architrave form the entablature, the most decorative element of the exterior of the temple (fig.2.4). Decoration in Greek temples had become set in a pattern or system in the Hellenic age. From a plan based on this system, the Greeks created the greatest temples in their part of the world.

### 7.1.2 Decoration of the buildings in CCA

By the *Eastern Zhou* 東周 (770-256 BC), decoration in CCA had become stylised. It, in step with architecture, had progressed from rough and free to a gradual stylisation, and had become set in a system by the *Han dynasty* 漢朝 (206BC-AD263). Since the *Han* 漢 this system has changed very little.

In the Taihe Dian the most impressive thing, when one first sees it, is perhaps its polychrome painted decoration: its curved hip roof covered by yellow glazed tiles; the white marble terrace and platform; the red columns; and the walls, fitted-windows and partition

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<sup>120</sup> Lawrence, Alexander. W., *Greek Architecture*, (Penguin Books, Harmondsworth, 1967), p61.

doorways - all strongly characteristic of this grand hall. The decoration in use in CCA by the time of the building of the Taihe Dian was extremely fine, and a wealth of meaning was expressed in the Taihe Dian. We can find a common pattern in the decoration of CWA and CCA:

Sculptures are the main decoration.

Then come reliefs and paintings.

Ornaments set off the sculptures.

The ornaments on the Parthenon are highly refined in form. For instance, the fluted Doric column is terminated by a convex cushion capital, the echinus, supporting a plain, square abacus. The transition between shaft and echinus is marked by a series of horizontal grooves. The entablature has a plain architrave. Above is an oversailing cornice, canted on the underside and carrying rectangular blocks adorned with further rows of guttae. In the temple, the biggest ornaments are the sculptured acroteria on the apex of each of the pediments, and on each of the low corners. The ante-fixes on the main ridge and on the end eave-tiles are the main decorative element on the roof. In fact, the marble tiles and rafters which form a sort of geometrical pattern are also part of the ornament of the roof. Traditionally, entablature is a favoured area for ornament; but cornices, triglyphs and regulars, including friezes, Doric capitals, door-ways and ceilings, have their share too.

## **7.2 Subjects and contents expressed in the polychrome painted sculptures and reliefs in the Parthenon and in the Taihe Dian**

### **7.2.1 The polychrome painted sculptures and reliefs in the Parthenon**

In the Parthenon the main decorations are the polychrome painted sculptures and reliefs on the pediments, metopes and frieze. Different subjects are represented in these decorations:

#### **Athena and her family**

On Greek temples, myths and legends are a regular subject of decoration. They are illustrated in the sculptures of the Parthenon. In addition to her gold and ivory cult statue in the eastern cella, Athena, with her family, is the central subject represented throughout the sculpture of the Parthenon. Figure 7.2a shows the sculptures on the east pediment of the Parthenon. A group of sculptured figures tells the story of the birth of Athena. On the eastern pediment they focus on the new-born Athena.<sup>121</sup>

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<sup>121</sup> "The personnel of the central group can be restored with help from other works showing the birth of Athena, but their poses cannot, and we shall have to rely on the identification and attribution of fragments. Zeus (f) is restored here frontal, but may have been in profile, with the full-grown armed Athena (g) before him. A piece of the presumed Hera (e) is preserved. Hephaistos, starting away with his axe which cleft Zeus' head, is here (d), but the torso (H) (here taken for Poseidon) has been given to Hephaistos hitherto. The inclusion of the chariot groups (a-c, i-k) remains uncertain, but there are scraps from figures and horses which may go here. Other figures should be attendant deities. (D), seated on an animal skin, should be Dionysos rather than Heracles. The goddesses seated on chests (E, F) are usually taken for Demeter and Kore, and the startled (G), Artemis. The fine group (K, L, M) is often taken for Hestia, Dione, and her child Aphrodite in her lap. The last is certainly a remarkably sensuous figure, especially for this date. Almost the only secure identifications are the chariot of the rising Sun Helios (A-C) and the setting Moon (Selene) or Night (Nyx) in (N, O)". Boardman, John, *The Parthenon and Its Sculptures*, (Thames and Hudson, London, 1985), pp229-230.

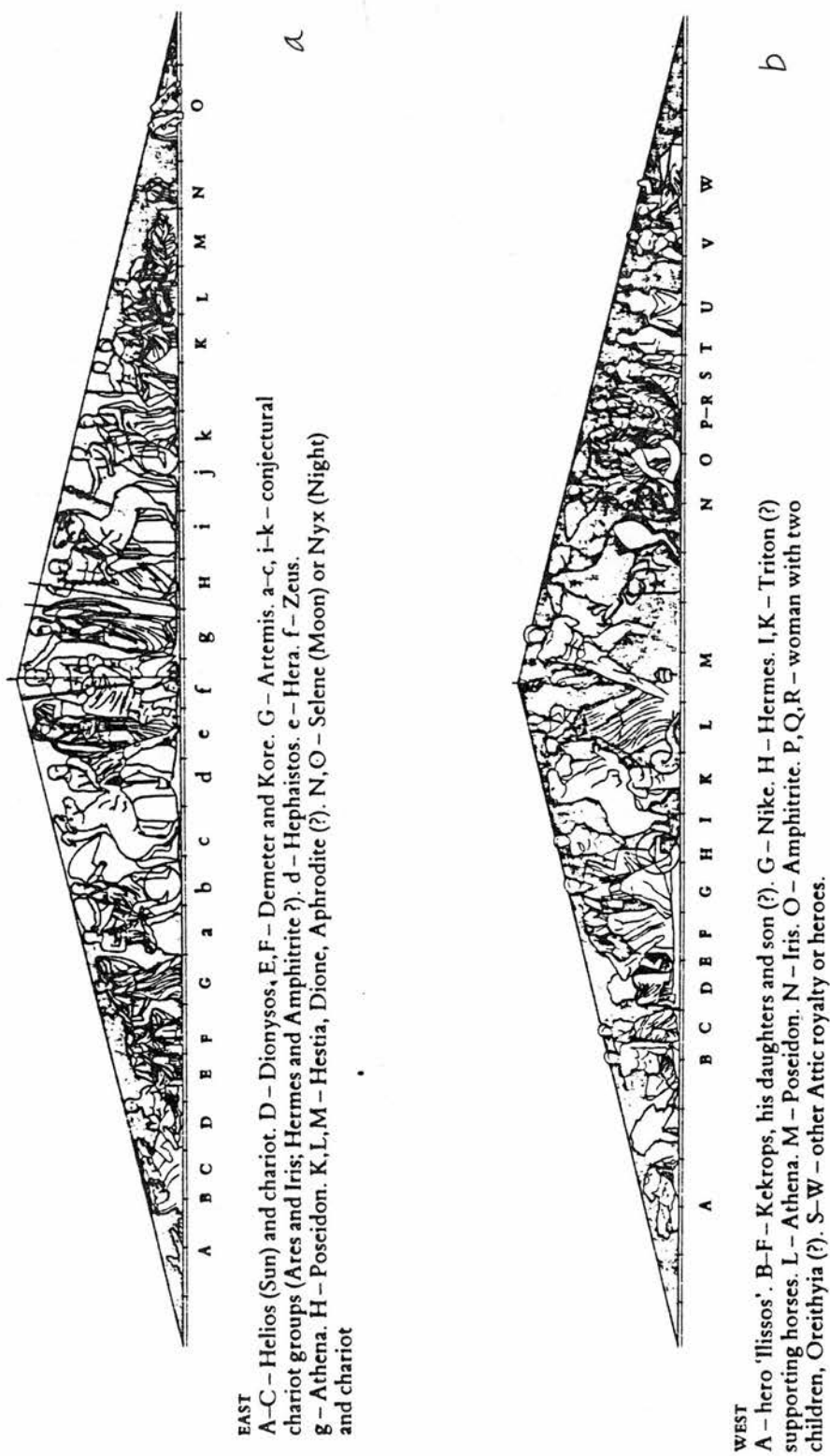


Figure 7.2. The pediments of the Parthenon, (a) the eastern pediment and (b) the western pediment (from Boardman, J., 1985).



Individually all the gods were worshipped in Athens, but not all on the Acropolis. In the decoration of the Parthenon, Athena's is a leading role. On the metopes Athena is prominent in fights with giants; and on the frieze she has a prominent place at a ceremony devoted to her worship.

Figure 7.2b shows the sculptures on the western pediment of the Parthenon.<sup>122</sup> They portray another favourite subject, that of the fight between Athena and Poseidon for Attica. The story of the birth of Athena tells of the origin of the goddess, and the fighting between Athena and Poseidon represents the oldest legend about the Acropolis and the city.

## **Gods and mortals.**

Most Greek myths and legends are about gods and mortals. They are expressed in poetry, in art and in the decoration of Greek temples throughout the Hellenic and the Hellenistic periods. In the Parthenon, gods and mortals are the main figures represented in the relief decoration.

### **(a) Heroes and kings**

In addition to gods and goddesses, heroes and kings are represented in the decoration of the Parthenon. On the metopes of the Parthenon the heroes, Heracles and Theseus, are two of the main figures. Heracles, as protege of Athena, seems to have enjoyed especial

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<sup>122</sup> "The Central group is clear, with substantial pieces of Athena with helmet and aegis (L), and Poseidon (M), no doubt armed with spear and trident respectively. Their bodies lunge away from the centre, but they are linked by their gaze and thrust. It is not certain whether an olive tree stood between them. A thunderbolt, indicating Zeus' intervention, has been suggested; and this is supported by its presence in a vase scene of the dispute (in other respects unlike the pediment scene, however). Athena's charioteer is likely to be Nike/Victory (G). Hermes (H) is seen in the background. Poseidon's charioteer should be his consort Amphitrite (O). Beyond her is Iris. Beside Amphitrite is her familiar, a sea-monster (ketos) whose head has recently been pieced together from fragments. Drawings suggest that the horses' bellies may have been supported by Tritons. The other figures are probably members of Athens' old royal family. The snake beside (B) suggests that this is Kekrops, with his daughter, to his left. The woman with two children (P, Q, R) could be the princess Oreithyia with Kalais and Zetes. (A) is taken for a personification of the River Ilissos on the analogy of Pausanias' identification of river deities on the pediment of the Temple of Zeus at Olympia: but he may have been wrong." Boardman, John, *The Parthenon and Its Sculptures*, (Thames and Hudson, London, 1985), pp247-248.

favour in sixth-century Athens; and Theseus plays a role as an Athenian prince and as a fitting rival or partner for Heracles. Both appear in the decoration of the Athenian Treasury, and on the pre-Parthenon metopes of the temple of Hephaistos. The local heroes and kings of Athens are also represented in the Parthenon sculpture. They fight beside Theseus in the Amazonomachy, and they and their families, occupy a position on the west pediment of the Parthenon (fig.7.2b), corresponding to that held by the Olympian gods on the east pediment, and stand before the Olympians themselves on the Parthenon frieze.<sup>123</sup> Heroes and kings are also represented in poetry, drama, and in the decoration of ceramic wares.

#### **(b). Amazonomachy and gigantomachy**

Greeks fighting Orientals and gods fighting giants are represented on the metopes of the Parthenon. Figure 7.3 shows this happening on the west metopes of the temple. On the west front metopes the subject represented on the fourteen slabs is fighting between Greeks and Persians. Fighting between gods and giants is portrayed on the east front metopes.<sup>124</sup> Amazonomachy and Gigantomachy are also represented on the metopes.

#### **(c). Centauromachy and the Sack of Troy**

The majority of the metopes on the south side depict a battle waged between Greeks and centaurs (fig.7.4). The Greeks are bearded men, beardless youths and a few women. The heroes, Heracles and Theseus, both take part in the fighting. The centaurs are depicted as half-man and half-horse. Their drunken attacks on the lady guests and bride at the wedding

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<sup>123</sup> Ibid, pp229-230.

<sup>124</sup> "The gods fought the giants, children of earth, but their victory depended on the participation of a mortal hero, Heracles. The story was often, perhaps always, woven on Athena's pelotas and is displayed in detail on vases dedicated on the Acropolis from the 560s on, when the Panathenaea was reorganized. It is a panhistorical story, but is given Athenian relevance through the role of Heracles and his warrior-goddess patron, and perhaps by some measure of translation of the location of the battle from Pallene in north Greece, to Pallene in Attica (where Theseus too is allowed to fight giants, on the road to Marathon). The giants are at first shown as hoplite warriors, but by the Classical period have become wild men, wearing animal skins and using rocks and torches as weapons." Ibid, p248.



*West metopes*



*East metopes*

Figure 7.3. The metopes of the Parthenon, (a & b) the western metopes, (c & d) the eastern metopes and (e) one of the southern metopes, youth and centaur (redrawn, based on Boardman, J., 1985).



e. South metope no. 1, in situ on the Parthenon (youth and centaur)

South metope no. 27 (youth  
and centaur)



South metope no. 28 (centaur  
and youth)



South metope no. 32 (centaur  
and youth)



Figure 7.4. South metopes of the Parthenon (from Boardman, J., 1985).

of the Lapith prince Peirithoos are repelled with the help of the groom's friend Theseus. The subject represented on the northern metopes is the Sack of Troy.<sup>125</sup>

The Troy story also appears in Greek literature. The gods' role is dwelt upon both in literature (from Homer on) and in art (their presence on the north metopes of the Parthenon). Myths had an important function in ancient Greek society. They preserved certain things from the past - great names and great deeds - had both political and religious functions, and let later generations of Greeks know about their early history.<sup>126</sup> So we have: Greeks against Persians or Amazons on the west side, Greeks against centaurs on the north, Greeks against Trojans on the north, and gods against giants on the east. The decoration here is a pictorial history of the wars between Greeks and barbarians.

## **The great Panathenaic Festival**

The frieze in the Parthenon, however, has only one theme, the great Panathenaic Festival, which is depicted on all four walls. The ceremonial procession took place during the ancient Athenian festival known as the Panathenaia. The festival was celebrated on Athena's birthday, the twenty-eighth day of Hekatombaion. As we mentioned in the second chapter, the building of the temple was associated with the great celebration of the Panathenaia. A likely theory about its fifth-century form is this subjective interpretation of the Parthenon frieze.<sup>127</sup>

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<sup>125</sup> "The Trojans of story and art were easterners, but behaved like Greeks, had Greek gods, and generally had better manners than the Greeks. The gods, through Paris' rape of Helen which had been contrived by Aphrodite as a reward for his Judgment, were responsible for the Trojans' downfall. The Trojans behaved heroically while, at the Sack, the Greeks behaved with ruthlessness and sacrilege. The Greeks claimed that it revenged the sack of innocent Athens, but the equation was unconvincing, and this was a story too well established to be tampered with in the interests of Athens." Ibid, p248.

<sup>126</sup> Griffin, Jasper, *The Oxford History of Greece and the Hellenistic World*, (Ed. J. Boardman, etc., Oxford University Press, Oxford and New York, 1991), p88-89.

<sup>127</sup> "We do not know the exact day of the procession, nor for how many days (probably three or more) the festival lasted. But the procession was probably one of the first events after songs and dances on the Acropolis by young men and women. There were athletes' contests, with prizes of oil collected from special groves at Academy, and presented in oil vases specially



The Panathenaic Festival was a nation-wide ceremony. Not only the Athenians, but also the people of the Athenian colonies and league states took part in it. During the festival, the Parthenon and the Acropolis were the focal point of the ceremony, and hundreds of cows and other sacrificial animals provided by colonies and allies were used for sacrifice. One beast was sacrificed to Athena Nike at her altar on the south side of the Acropolis entrance. The altars were kept burning throughout the festival.

The Parthenon frieze differs from the sculptures on the pediment in that it is a scroll picture. The picture on the frieze shows the Greeks on the way to their goddess, and the iconographic scene of the reception by the Olympians follows. The facial features of the participants are individualised, and so realistic that they can be identified. For instance, the children of the royal family are portrayed on the frieze; and they would have been taller had the work been executed only a year later.<sup>128</sup> The Greeks painted and sculptured in a naturalistic way, as is evident in the decoration of the Parthenon.

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decorated for the purpose, with Athena shown on one side in the stance of an Archaic fighting image (Promachos) between columns surmounted by cocks, and on the other side a depiction of the games." Boardman, John, *The Parthenon and Its Sculptures*, (Thames and Hudson, London, 1985), pp222-223.

<sup>128</sup> According to John Boardman, the composition starts at the south-west corner, over the main temple door:

**On the west:** Horsemen are preparing themselves (fig.7.5), among them a striking bearded figure (15) whose face is now broken away. Others attend to dress or harness, and several have yet to mount. The mounted cavalcade proceeds, north and south. The horsemen are brilliantly portrayed in the shallow relief in overlapping ranks. There seem to be ten ranks on the north, and, more clearly, ten on the south, where each rank is also distinguished by dress, and is attired in either Thracian fur hats, or broad-rimmed sun hats, or helmets; in short cloaks only, or tunics, or full armour; and in boots or sandals.

**On the south:** In the foreground come chariots, ten to the south (fig.7.6); ten, eleven or twelve, it seems, to the north. Each has a charioteer and warrior, variously dressed and shown leaping on or off the car except where the chariot is stationary (the variations of pace are dramatic). There is also an attendant. In the cavalcade and chariot race there appear the solitary figures of marshals.

**On the north:** In front of the chariots the mood and progress of the procession alter significantly (fig.7.6). To the north 43-28 and south 84-101 are old men, possibly branch-bearers(thallophoroi), but the branches are not in evidence, and are not easily restored in metal or paint. North 27-20 are musicians with kitharas and pipes; and south 102-5 look like players also, but they may be carrying tablets. North 19-16 carry water-jars, necessary for the sacrifice. North 15-13 and south 106 are tray-carriers (skaphoroi). In the south foreground are men with cattle for sacrifice, while to the north they bring cattle and horned sheep.



West frieze, slab viii, figure 15, from a cast in the Cast Gallery, Oxford.  
The head is now mainly destroyed



# THE WEST FRIEZE

HORSEMEN,  
RIDERS PREPARING  
AND MARSHALS (1, 5)

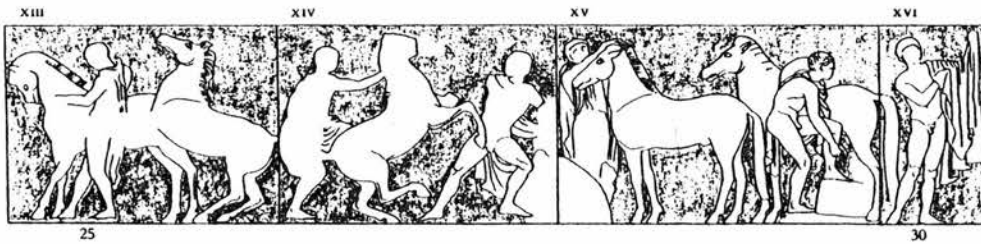
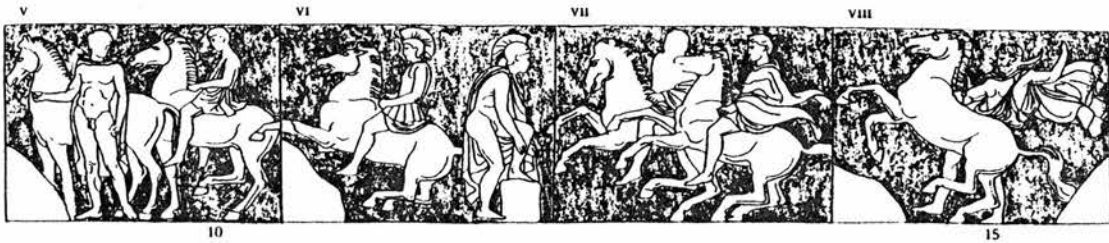
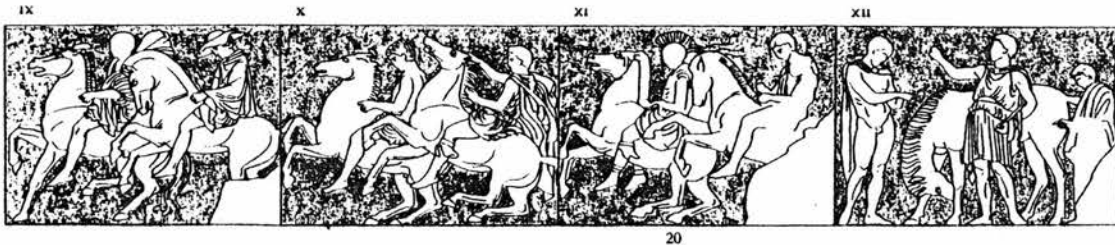
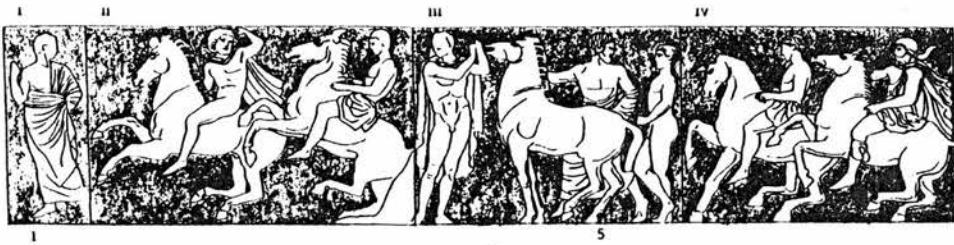
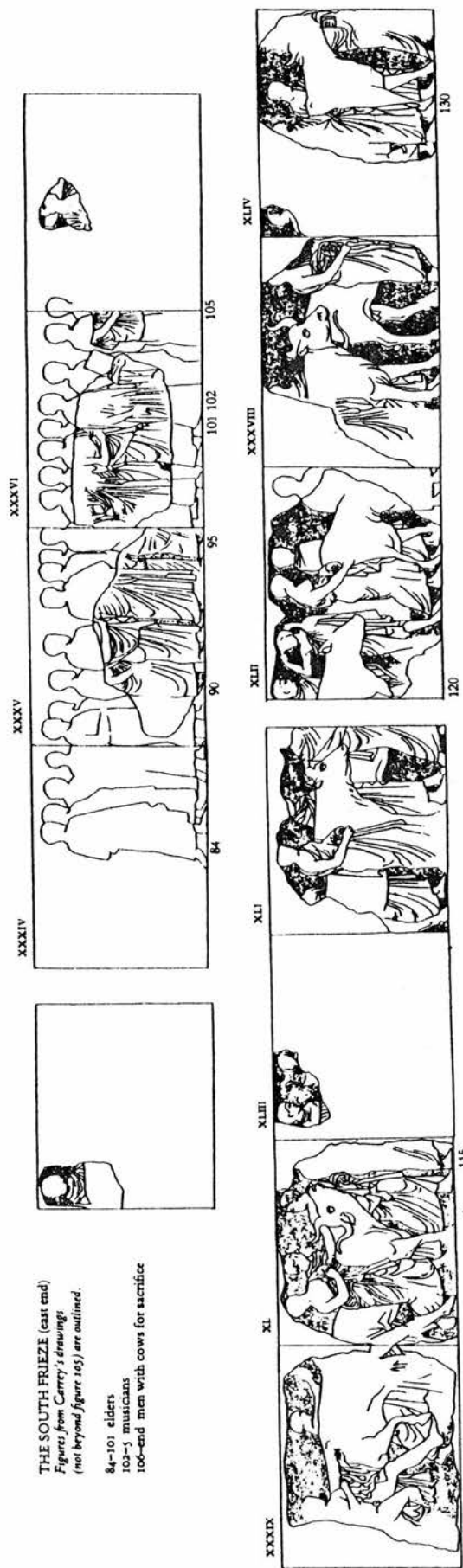


Figure 7.5. The western frieze of the Parthenon (from Boardman, J., 1985).



THE SOUTH FRIEZE (east end)  
 Figures from Carrey's drawings are outlined.  
 Described from the back to the front of the procession, as with the south frieze.

- 41-58 elders
- 27-34 musicians with lyres
- 29-30 pipers
- 19-16 water-jar carriers
- 15-13 tray carriers
- 12-1 men with sheep and cows for sacrifice

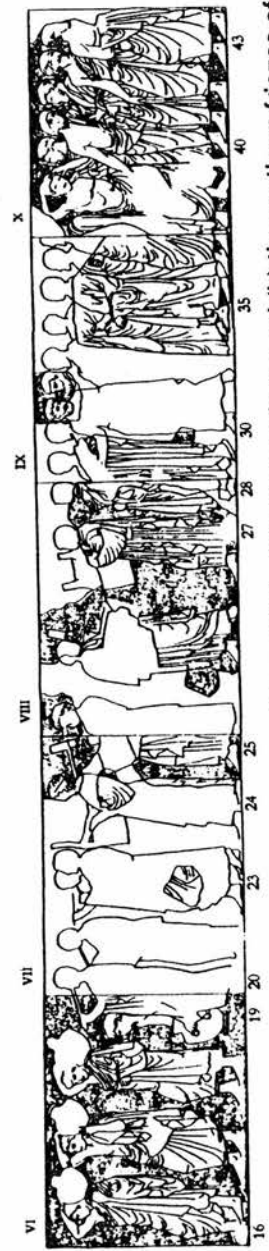
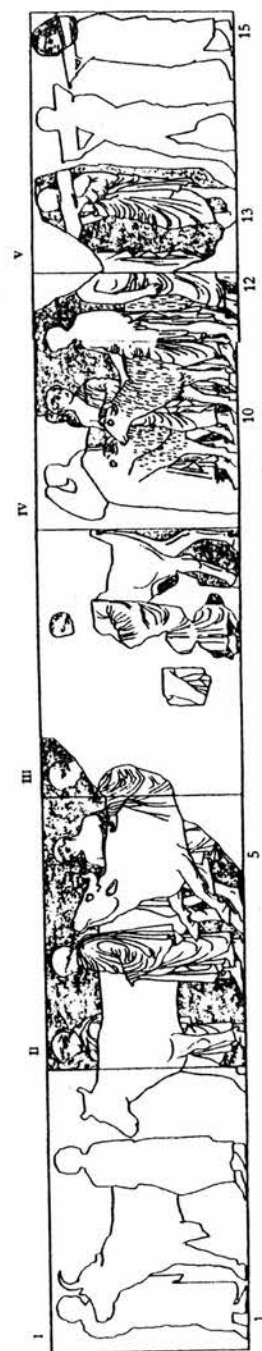
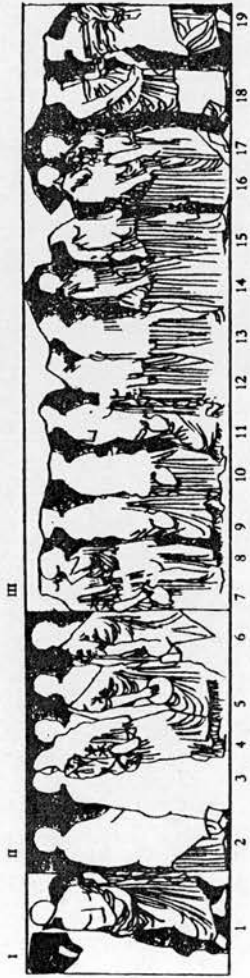


Figure 7.6. (a) The southern and (b) the northern friezes of the Parthenon (from Boardman, J., 1985).



# THE EAST FRIEZE

## MORTALS AND HEROES

1. mortal
- 2-11. women with jugs and *phialei*
- 12-15. two pairs of women carry loom-legs (?)
- 16-17. women (weavers?)
- 18-23. 43-46 ten Attic Eponymous Heroes
- 47-49. 23 marshals
50. 51. 53-57 women (55 with *phiale*, 57 with incense-burner)
- 58-63. women with jugs and *phialei*

## GOODS

24. Hermes. 25. Dionysos. 26. Demeter.
27. Ares. 28. Nike. 29. Hera.
30. Zeus. 36. Athena. 37. Hephaistos.
38. Poseidon. 39. Apollo. 40. Artemis.
41. Aphrodite. 42. Eros.

## CENTER SLAB

31. 32. girls with stools
33. priestess of Athena
34. Archon Basileus
35. girl with *peplos*

Figure (7.7). The eastern frieze of the Parthenon (from Boardman, J., 1985).

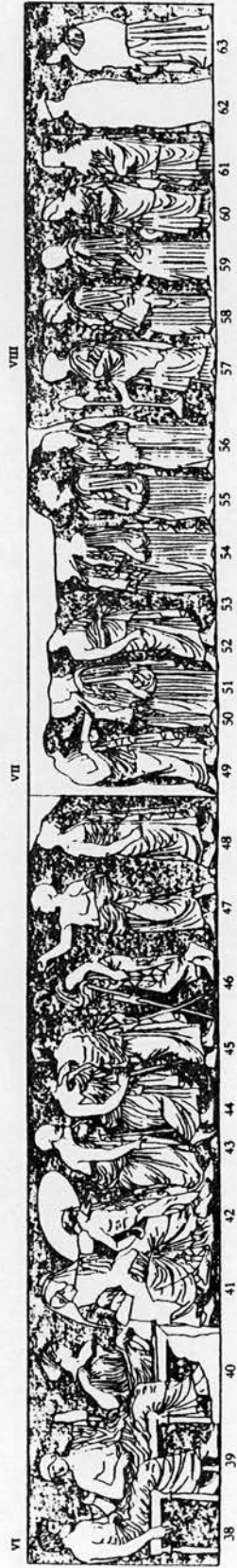


Figure7.7. The eastern frieze of the Parthenon (from Boardman, J., 1985).

## 7.2.2 The polychrome painted sculptures and reliefs in The Taihe Dian

Polychrome painted sculpture, relief and painting are the main methods used in decoration in CCA. The decoration in the Taihe Dian is composed of various symbolic images, such as the dragon and the phoenix, and ornaments. Here the myths and legends are represented by symbolic designs instead of by human figures:

### A writhing dragon with phoenixes

The dragon is the main motif in the decoration of the Taihe Dian. Figure 7.8 shows a large writhing dragon holding a pearl in its mouth, and occupying a central position in the dome. It is the chief decoration in the interior of the Taihe Dian. Surrounding it are twelve phoenixes and eight dragons, carved on the caisson.

The dragon is one of the oldest mythological animals represented on buildings in CCA. According to the legends, the dragon first made its appearance in the reign of the Emperor *Fu-yi* 伏羲 (pre-history). This imaginary creature appeared during the early *Shang* 商 (1600-

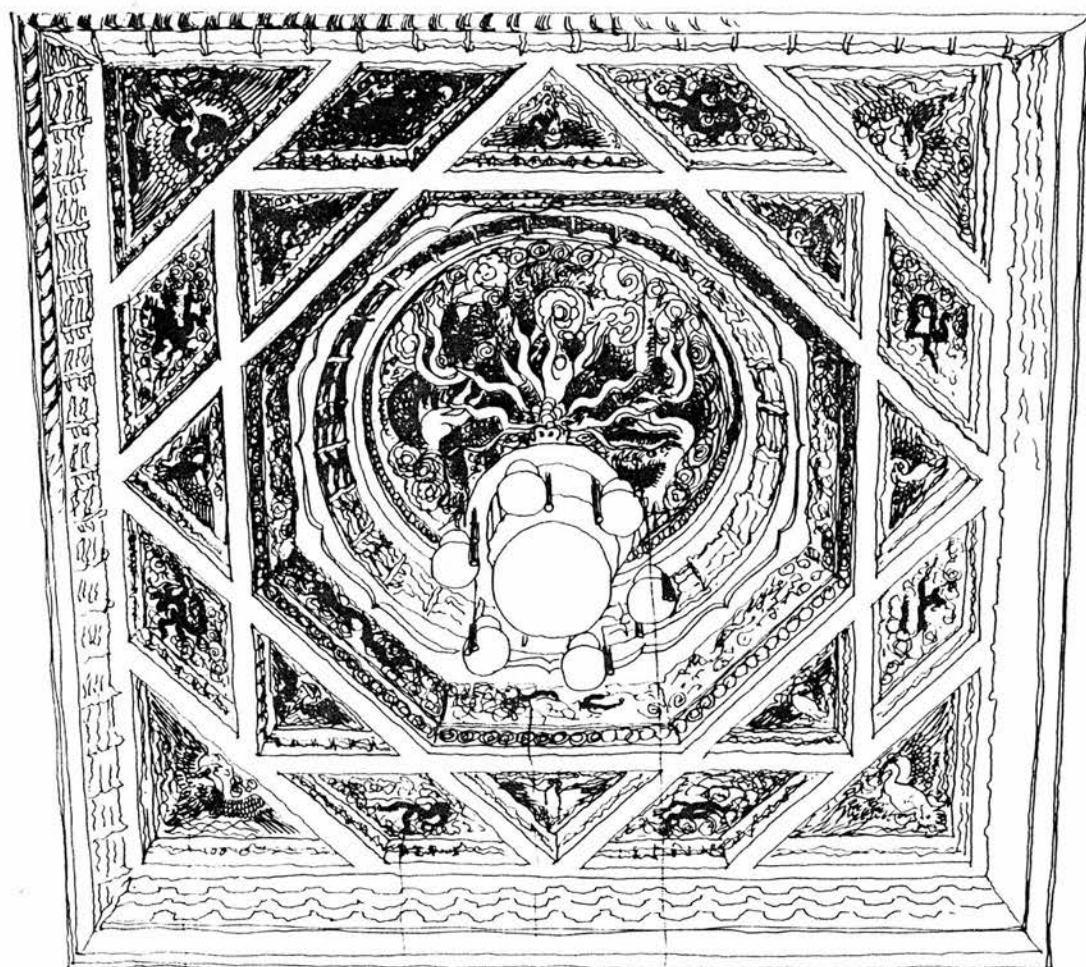
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**On the east:** The scheme is roughly symmetrical. From the left and right women move slowly forward, many of them carrying the jugs and phialai necessary for libations (fig.7.7). Some are empty-handed, perhaps peplos-weavers. Two pairs (12-15) carry heavy stands, perhaps loom-legs, and one has an incense burner (57). One marshal (49) holds a dish, another (47) gestures over the central figures to the other half of the procession. 18-23 and 43-46, on a slightly larger scale, are generally taken to be the ten Eponymous Heroes of the Attic tribes. The gods, seated on stools, except for Zeus (on throne), were correctly identified by the Plataean, but Heracles has been suggested for 25, and Hecate for 26. The Eros (42) is known from casts made by Fauvel, but the figure is now almost totally obliterated. The gods face outwards to greet the procession, the heroes mediate between the divine and the mortal, and there is an element of greeting as well as sacrifice in the girls with phialai and jugs. The central group, on which the gods turn their backs, comprises two girls holding stools on their heads (31, 32), one of them also holding a footstool; a woman, surely the priestess of Athena, helping the one with a stool; and a man, surely the Royal Archon, receiving the folded peplos from a young girl, who must be an arrhephoros. She has generally been taken for a boy, but we would expect a girl: the age and dress is appropriate and she has markedly feminine Venus rings on her neck.

Ibid, pp222-223.



Paint Echinus



• 100 of smaller phoenixes which fly towards the centre of the dome

• One of wuthing dragons which together with  
the large wuthing at the centre form 'Nine  
dragons'

• a dragon about a flaming pearl.

• the large wuthing dragon  
which is the largest sculpture  
in the interior of the hall

Figure 7.8. Decoration on the large carved caisson of the Taihe Dian.

1028 BC) as a bronze decoration on the earliest ritual vessels, which held food and wine to be sacrificed to dead ancestors. There are a great many other mentions of dragons, and they make it clear that the Chinese had pictured a creature like the dragon in their imaginations from remote antiquity, though it may not have been until the time of the *Eastern Zhou* 東周 (770-256 BC) or later that they came to represent it graphically in decoration. Examples of the use of dragon design in CCA can be dated back to the *Han dynasty* 漢朝 (206BC-AD263).

The dragon is a symbolic animal which is composed of many sorts of animal. There is its long wriggling body marked with diamonds, derived from the snake and the fish; a large head, looking like a bull's or horse's; a pair of short, round horns, which come from the deer; and four strong legs with the claws of an eagle. Figure 7.9 shows a dragon design carved on a pottery tile from a tomb in *Henan* 河南. A soldier, wearing shorts and a fight-jacket, and carrying a shield and a short two-edged sword, stands above the long body of a dragon. By this time, the dragon was represented in a stylised way, and was an important ingredient of decoration in CCA.

In China, the dragon was a symbol of the emperor and of his power. During the *Zhou dynasty* 周朝 (1023-256 BC), the dragon represented heaven, and the *Zhou* 周 emperor called himself 'the son of heaven' or 'real dragon emperor'. In the *Han dynasty* 漢朝 (206BC-AD263), the dragon appeared as one of the 'four deities' of the directions, and represented the east. It was adopted by the Chinese as a symbol of mysterious power, and came to be used in the palace and on everything connected with the emperor.<sup>129</sup>

Another creature used in the decoration of the Taihe Dian is the phoenix. It is a bird-like composite, its head being a chicken's, and the eyed tail-features those of a peacock. As with the dragon, the phoenix design was a favourite for use on bronzes by the time of the *Zhou dynasty* 周朝. Figure 7.10 shows a phoenix design carved on the bronze of the *Zhou*.

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<sup>129</sup> Chuta, Ito, *Architectural Decoration in China*, (transl. Jiro Harada), (Hara Shobo, Tokyo, 1983), p174.





Figure 7.9. Ink-squeeze of rectangular tile, with simple dotted-lozenge design border, and female dragon with armed soldier standing over it (from White, W.C., 1939).



Figure 7.10. Ink-squeeze of a phoenix design on the bronze of the Shang (from Shanghai Museum, *Ornament of Shang and Zhou Ritual Bronzes*, Wen Wo Press, Beijing, 1984).

周. In the *Han dynasty* 漢朝, the phoenix appeared as the red bird, one of the 'four deities', and represented the south. It was in the *Tang dynasty* 唐朝 (618-907) that it assumed its majestic form as the king of birds; but it gradually lost its position as time went on.<sup>130</sup> In the *Tang dynasty* 唐朝 the dragon represented the forces of both *yang* 陽 and creation, and controlled the heavens. The phoenix stood for the most auspicious direction of all, the south, and represented the forces of both *yin* 陰 and beauty.

During the *Ming dynasty* 明朝 (1363-1644) and the *Qing dynasty* 清朝 (1644-1911) the phoenix, representing the empress, was one of the designs most used in decoration in the Forbidden City. In the case of the Taihe Dian, the dragon is the only important subject used in the decoration. Countless dragons occupy almost all the space. Traditionally, when symbolising the emperor, the dragons have five claws.<sup>131</sup> Figures 7.11, 12 & 13 illustrate a writhing dragon design used in the decoration of the Taihe Dian. Beginning with the large gilt caisson, we see:

### **Interior decoration:**

A writhing dragon, holding a pearl in its mouth, occupies the centre of the dome of the caisson at the centre of the coffered ceiling (fig.7.11a). Eight writhing dragons and twelve phoenixes are placed around it (fig.7.8).

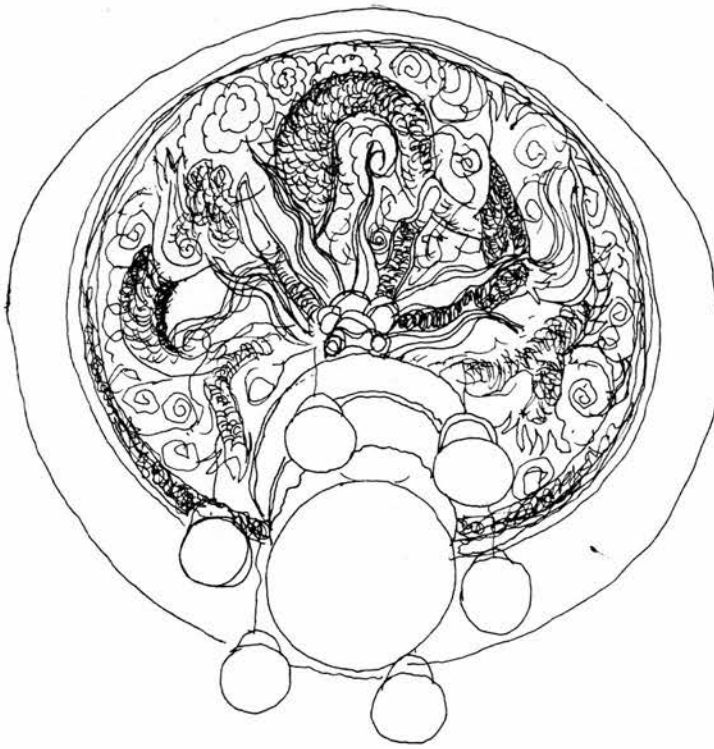
A writhing dragon with medallions of flower motifs occupies the centre while triangular cloud patterns fill the four corners of the coffered ceilings. Their colour complements that of the circle at the centre (fig.7.11b).

Writhing dragons and cloud motifs provide polychrome decoration on the beams and column heads (fig.7.12).

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<sup>130</sup> Ibid, p176.

<sup>131</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p212.



(a)



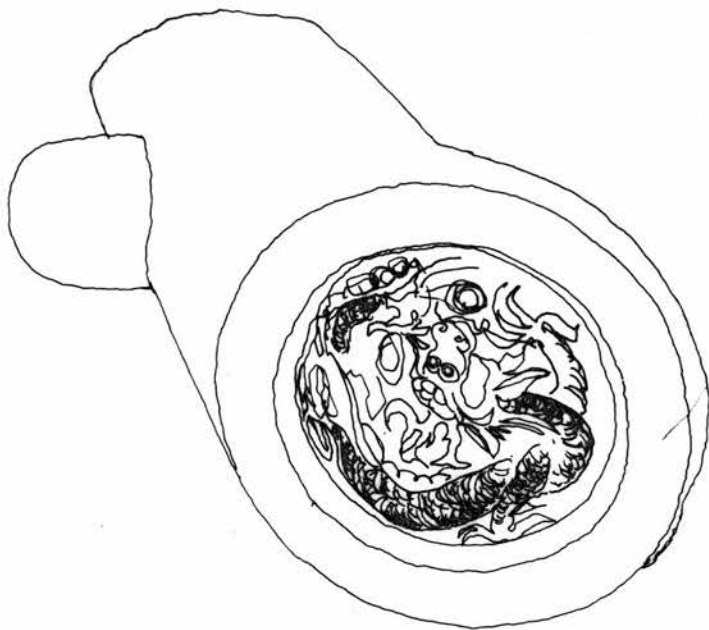
(b)

Figure 7.11. A writhing dragon holding a pearl in its mouth occupies the centre (a) of the dome of the caisson and (b) of the coffered ceiling of the Taihe Dian.





(a)



... on the end-eaves  
tiles.

(b)

Figure 7.13. (a) The capital of each post of the balustrades of the marble terrace utilises the dragon design, and (b) a writhing dragon decorates each of the glazed end-tiles of the Taihe Dian.



Huge dragons coil themselves round and up the six pillars flanking the throne (fig.2.18).

Writhing-dragon designs and cloud motifs are carved on the gilt throne and its terrace.

### **Exterior decoration:**

A writhing-dragon design decorates each of the glazed ante-fixes, end-tiles (fig.7.13b) and triangular end-tiles.

Writhing dragon designs and cloud motifs are used in polychrome decoration, as also happens in the interior (fig.7.12).

The capital of each post of the balustrades of the marble terrace utilises the dragon and phoenix motifs (fig.7.13a).

Writhing dragon designs are carved on the partition doors (fig.2.21).

In some *Han* 漢 reliefs we can see that there is a pair of phoenixes standing upon the main ridge. It was an auspicious symbol. Figure 7.14 gives two examples of a phoenix design used in CCA in different periods. In these designs two confronting phoenixes about flowers are the major features.

By the time of the *Ming dynasty* 明朝 (1363 - 1644) and the *Qing dynasty* 清朝 (1644-1911), and especially in the Forbidden City, the dragon had come to symbolise only the emperor, and the phoenix had come to stand for the empress. Their function in indicating directions had by this time almost disappeared. However they were still the two most important auspicious symbols.

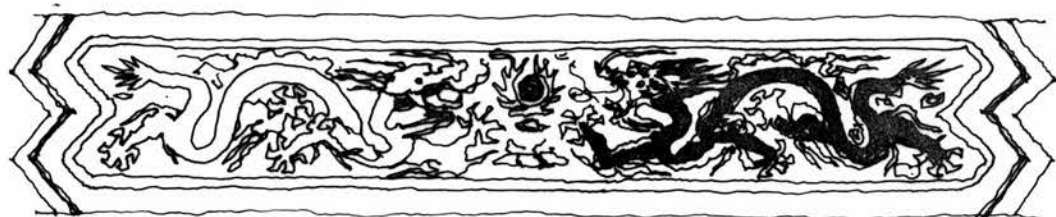


c



b

Figure 7.14. (a) Two phoenixes about a flower painted on the beams of the Hall of Union in the Forbidden City ,and (b) two phoenixes about a flaming pearl carved on the ramp of the Forbidden City.



(a)



(b) Base of the throne

Figure 7.15. (a) Two confronting dragons about a pearl painted on the beams of the Taihe Dian, and (b) the dragon chair in the Taihe Dian.

## **Two dragons fighting for a flaming pearl**

A fretwork design of two confronting dragons about a flaming pearl is another important ornament in the Taihe Dian. Figure 7.15a shows two dragons about a flaming pearl on a turquoise ground. This is the main decoration on the gilt throne. It is also the main design of the polychrome painted decoration on the beams (fig.7. 12).

## **Nine dragons**

The nine writhing dragons form another theme which appears in the most important areas of decoration in the Taihe Dian. Nine and its multiples were considered perfect numbers in China. A large dragon on the dome of the caisson is a central decoration in the interior of the Taihe Dian, and there are eight writhing dragons around it (fig.7.8). In the Taihe Dian the theme of the nine-dragon is represented in the decorations on the axis (fig.7.16). Here we see:

Nine dragons compose the design on the large gilt caisson (fig.7.16a).

There are nine-dragon sculptures carved upon the large paralleled screen behind the ornately carved imperial throne at the centre of the dais (fig.7.16b).

Nine dragons writhe on the arm-rests of the gilt throne. Claspings one pillar with its back claws the body twists and writhes through space, so that the others all turn towards it; and this imparts a dynamic, aerial quality which contrasts with the solidity of the broad couch (fig.7.16c).

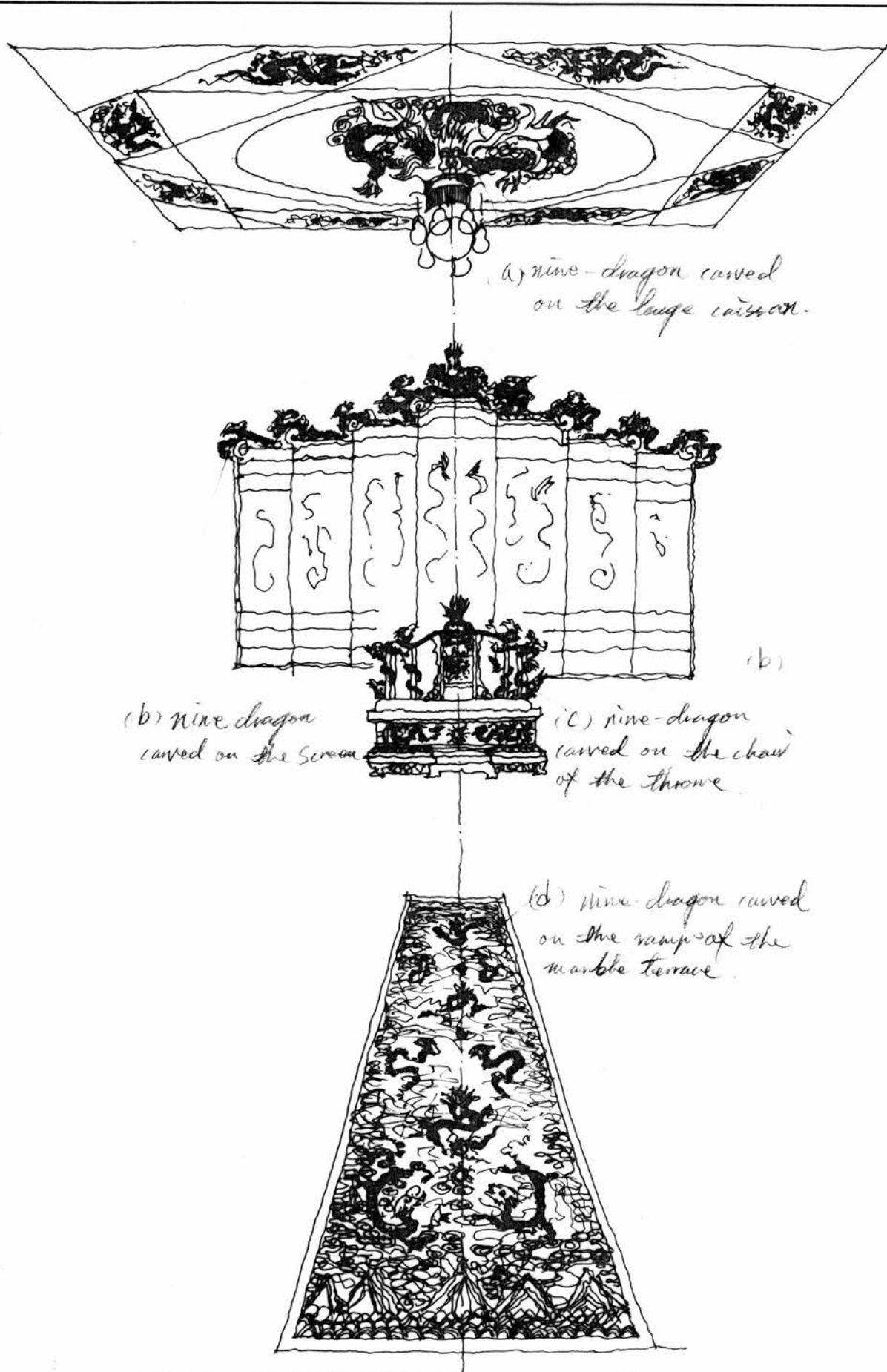


Figure 7.16. Nine-dragon theme in the decoration of the Taihe Dian

Nine-dragon designs decorate the large carved marble ramps lying between the two flights of steps approaching and leaving the hall. Imperial dragons chase flaming pearls through swirling clouds with bare fire claws. The lower part of the slab bears rolling waves crashing against stylised mountains (fig.7.16d).

In contrast with the realism of the sculpture and relief in the Parthenon, the decoration in the Taihe Dian is symbolic. For instance, instead of showing a goddess and her family, and illustrating the fighting between the Greeks and their enemies, a large writhing dragon is carved on the caisson, and a framework of two confronting dragons about a flaming pearl is carved on the throne and painted on the beams. The polychrome painted sculpture and relief in the decoration of the Parthenon and the Taihe Dian have their own pattern. In general, polychrome painted sculpture and relief are the two major methods of decoration in both buildings. Behind these two stand the myths and legends. The builders of the Parthenon and of the Taihe Dian represented the myths and legends with concrete and visible images in these two methods of decoration.

### **7.3 Subjects expressed in the ornaments of the Parthenon and of the Taihe Dian**

In the Parthenon and the Taihe Dian, the polychrome painted sculptures and reliefs form a narrative picture that translates myths, legends and religious stories. The left-over surfaces bear the minor ornaments which work as their frames.

By observing the ornaments in both the Parthenon and the Taihe Dian, one is able to classify the designs under these headings:



1. Animal designs.
2. Botanical designs.
3. Natural object and geometric designs.
4. Literary characters.

The first three kinds of design are derived from things in the natural world. Chinese literary characters possess true worth in a decorative scheme, because of the reverence in which they are held by the Chinese.<sup>132</sup>

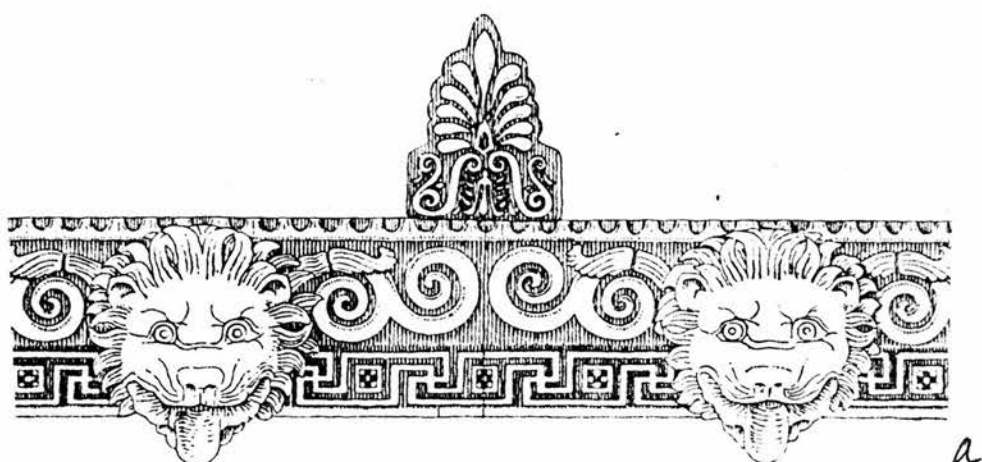
### 7.3.1 Ornaments in the Parthenon

#### Animal designs

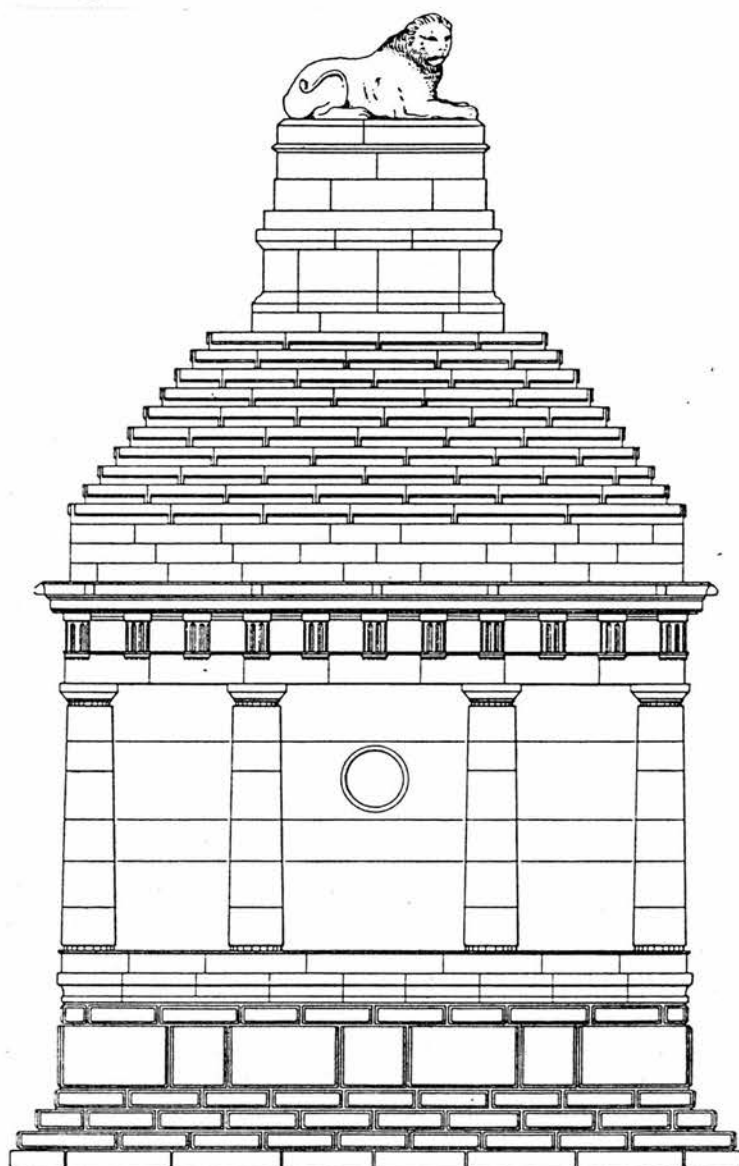
In the Parthenon, a lion-head design waterspout is placed at each corner of the roof. The lion-head design waterspouts for the gutters of Greek temples was a common feature during the sixth and fifth century BC, and is regularly seen up to the Hellenistic period. Figure 6.17a shows the lion-head gutter of the south stoa at Corinth, built in 338 BC. On the gutter is a row of water-spouts in the form of lion-heads separated by acanthus scrolls, with an ante fix above each interval, and with other ante- fixes on the roof-ridge, aligned with the lions' heads. Another example of the use the lion design as an important decoration is seen at the lion tomb at Cnidus. A colossal statue of a lion is placed upon the apex of the pyramidal roof (fig.17b). In the Parthenon, a lion-head sculpture is carved on each corner of the cornice. This lion-head design customarily served as a water-spout, but here it has no function except as decoration.

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<sup>132</sup> Chuta, Ito, *Architectural Decoration in China*, (transl. Jiro Harada), (Hara Shobo, Tokyo, 1983), p174.



a



b

Figure 7.17. (a) The lion head gutter of the south stoa at Corinth, and (b) a colossal statue of a lion placed upon the apex of the pyramidal roof at the lion tomb at Cnidus.

## Botanical designs

Botanical designs also play a major role in decoration in the Parthenon. They are symbolic. For instance, the palmetto design used for the acroteria of the temple is a botanical motif in that it is not a copy of the real palmetto. Botanical designs embody some of the principles of classical building, such as symmetry, balance, centripetality and harmony. Three plant designs which enjoyed great popularity in CWA were the honeysuckle, the palmetto and the acanthus.

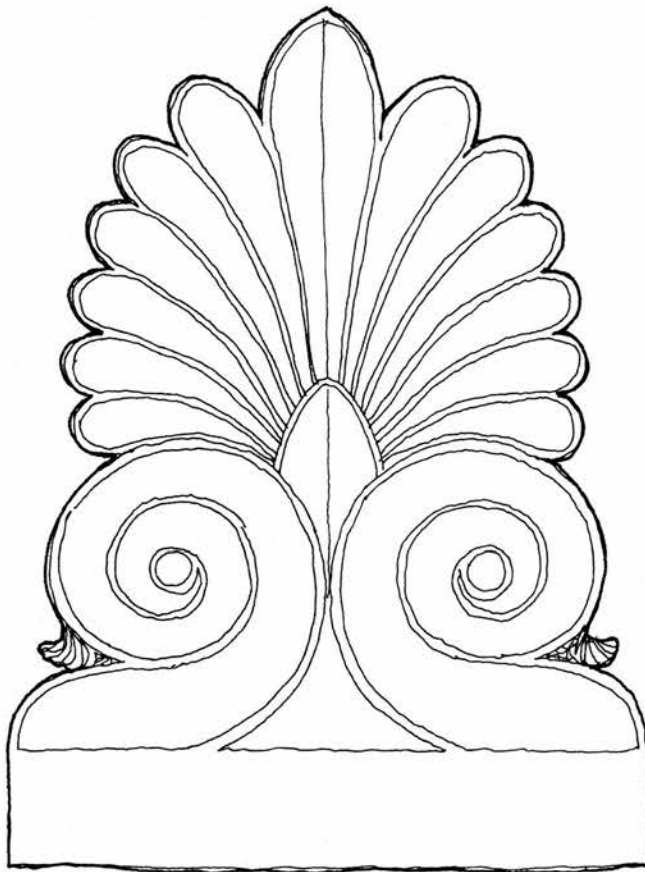
As with most Greek ornamentation, the use of honeysuckle, palmetto and acanthus can be dated back to the decorations of the Egyptians. During the seventh century, the Greeks were sufficiently acquainted with all the arts of the Egyptians, and very much was learned by them from the Egyptians.<sup>133</sup> By the Doric age, honeysuckle, palmetto and acanthus designs had been frequently used in the decoration of Greek temples and terra-cotta vases; and they had all become characteristic of the distinctively Greek style of decoration. Figure 6.18 shows the elevation of an ante-fix from the Parthenon. From these, we see that the structural principles of natural plant-radiation, proportion and balance are all represented in the designs.

## Geometric designs

In addition to animal and botanical designs, geometric designs frequently appear in decoration in the Parthenon. They are sometimes clearly also structural members of the building, as in the case of a Doric capital or a window-frame. The Greek fret is a geometric design used in the decoration of the temple. Figure 7.19 shows geometric designs painted

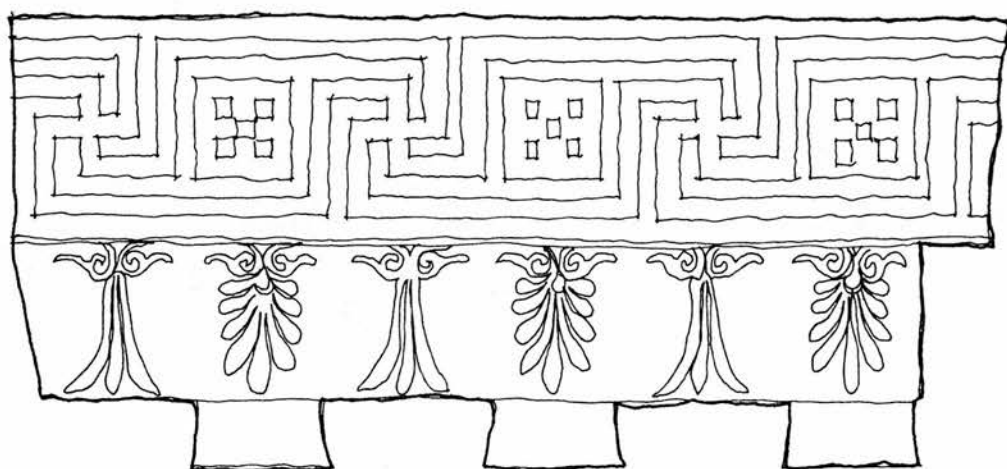
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<sup>133</sup> Wornum, Ralph Nicholson, *Analysis of Ornament: the Characteristics of Styles*, (Chapman & Hall, London, 1860), p45.

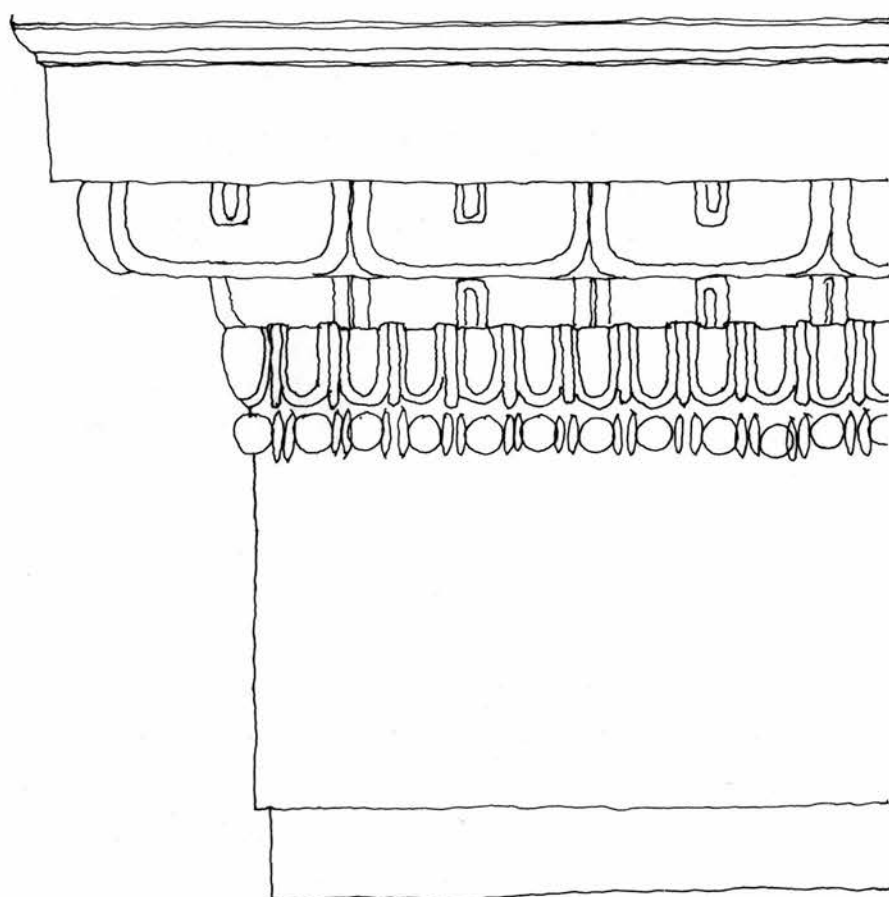


TERMINATION OF THE MARBLE TILES OF THE PARTHENON  
L. VULLIAMY

Figure 7.18. Elevation of the antefix of the Parthenon (from Jones, O., 1856).



ORNAMENT PAINTED ALONG TOP OF ARCHITRAVE OF PARTHENON (a)



(b)

Figure 7.19. (a) Ornament painted along the top of the architrave, and (b) along the of the outer capital of the Parthenon (drawn, based on Lawrence, A., 1967).

along the top of the architrave of the Parthenon. The polychrome ornament is repeatedly used to form the decoration on the architrave (fig.7.19a). Below appears the most characteristic Greek geometrical design, the echinus or horse-chestnut (egg and tongue), decorated on the ante capital of the temple (fig. 7.19b).

### 7.3.2 The ornaments in the Taihe Dian

#### Animal designs

Lion design is a popular ornament in the decoration of CCA. Figure 7.20a shows one of a pair of bronze lions which stand in front of the Gate of Supreme Harmony. The bronze lions displayed in the Forbidden City symbolise not only the splendour of the imperial palace, but also the 'dignity' and 'solemnity' of the emperor.<sup>134</sup> The lion in ancient China was also a mythological animal which had been introduced from the West.

In the Taihe Dian a bronze crane incense burner is placed on the top of the three-tiered marble terrace, and a pair of bronze cranes (fig.7.20b) are placed flanking the throne. Figure 7.21 shows a bronze tortoise and elephant used in the Forbidden City. On the front apron of the top-most terrace of the Taihe Dian there stand at the back a pair of bronze tortoises, in the centre a pair of bronze cranes, and a stone sundial in the left and in the right hand corners. Tortoises, turtles and cranes were symbols of longevity. Later in history appeared various kinds of birds and flowers, which were used as decorative motifs in realistic drawings and sculpture for architectural decoration.<sup>135</sup>

In both CWA and CCA only a few animal designs are used in the decoration. Such were the lion, the bull, and the horse designs used in the Greek temples. One reason was that

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<sup>134</sup> Yu, Zhuoyun, *Palaces of the Forbidden City*, (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p55.

<sup>135</sup> Chuta, Ito, *Architectural Decoration in China*, (transl. Jiro Harada), (Hara Shobo, Tokyo, 1983), p177.

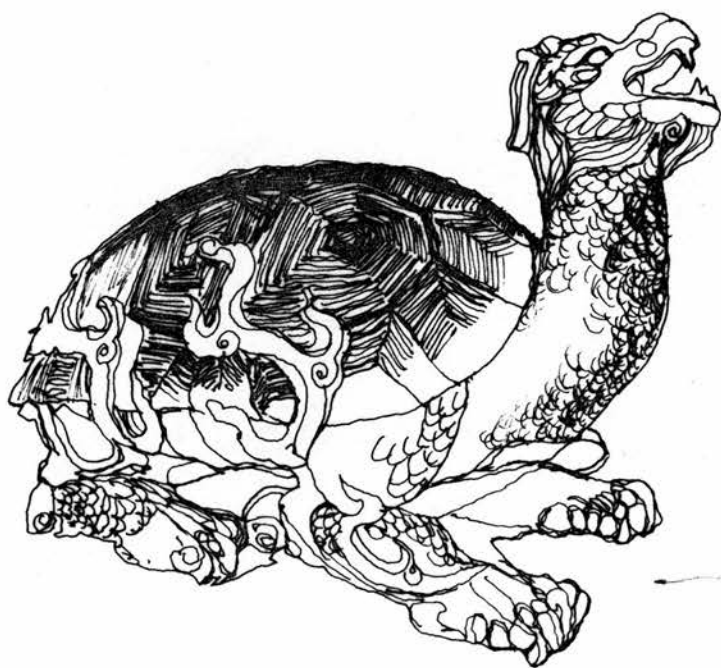




Figure 7.20. (a) One of a pair of bronze lions in front of the Gate of Supreme Harmony of the Forbidden City, and (b) one of a pair of bronze cranes in front of the Taihe Dian (drawn, based on the photos of Yu, Z.Y., 1984).



(a)



(b)

Figure 7.21. Gilt bronze elephant (a) and tortoise (b) in the Forbidden City (drawn, based on the photos of Yu, Z.Y., 1984).

the only kinds of animal used in the decoration of the temples were ones offered in sacrifice during the ritual ceremonies. For instance, during the great Panathenaic Festival, Athenians used bulls as sacrifices to their goddess, Athena.

## Botanical designs

In CCA animal designs exceed in number those with botanical motifs. An examination of artefacts reveals that no design recognisable as representing a plant is to be found on any *Zhou* 周 bronzes. It was only in the *Han dynasty* 漢朝 (206BC-AD263) that botanical designs began to be used in decoration in CCA.

The lotus design is a popular ornament in CCA. For instance, lotus flowers with small pointed petals are fitted into the framework of a half-palmetto scroll figure in the decoration of the Taihe Dian. Introduced in China along with Buddhism were decorations in the form of large single lotus heads, their petals spread out in a circle. They were used on the ceilings in Chinese Buddhist temples, and as pedestals for Buddha. Figure 7.22 shows a Buddha statue with the lotus design in the *Louhou Monastery* 羅喉寺, *Wutai Shan* 五台山, *Shanxi* 山西 province. Here the large lotus sculpture is the central decoration in the temple. The lotus design is used in the relief on the platform of the Taihe Dian. As with animal design, flower patterns used in decoration in CCA are given symbolical meaning; and most of them are auspicious motifs for designs based on phonetic association or visual and traditional suggestions.<sup>136</sup>

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<sup>136</sup> Chuta, Ito, *Architectural Decoration in China*, (transl. Jiro Harada), (Hara Shobo, Tokyo, 1983), p182.

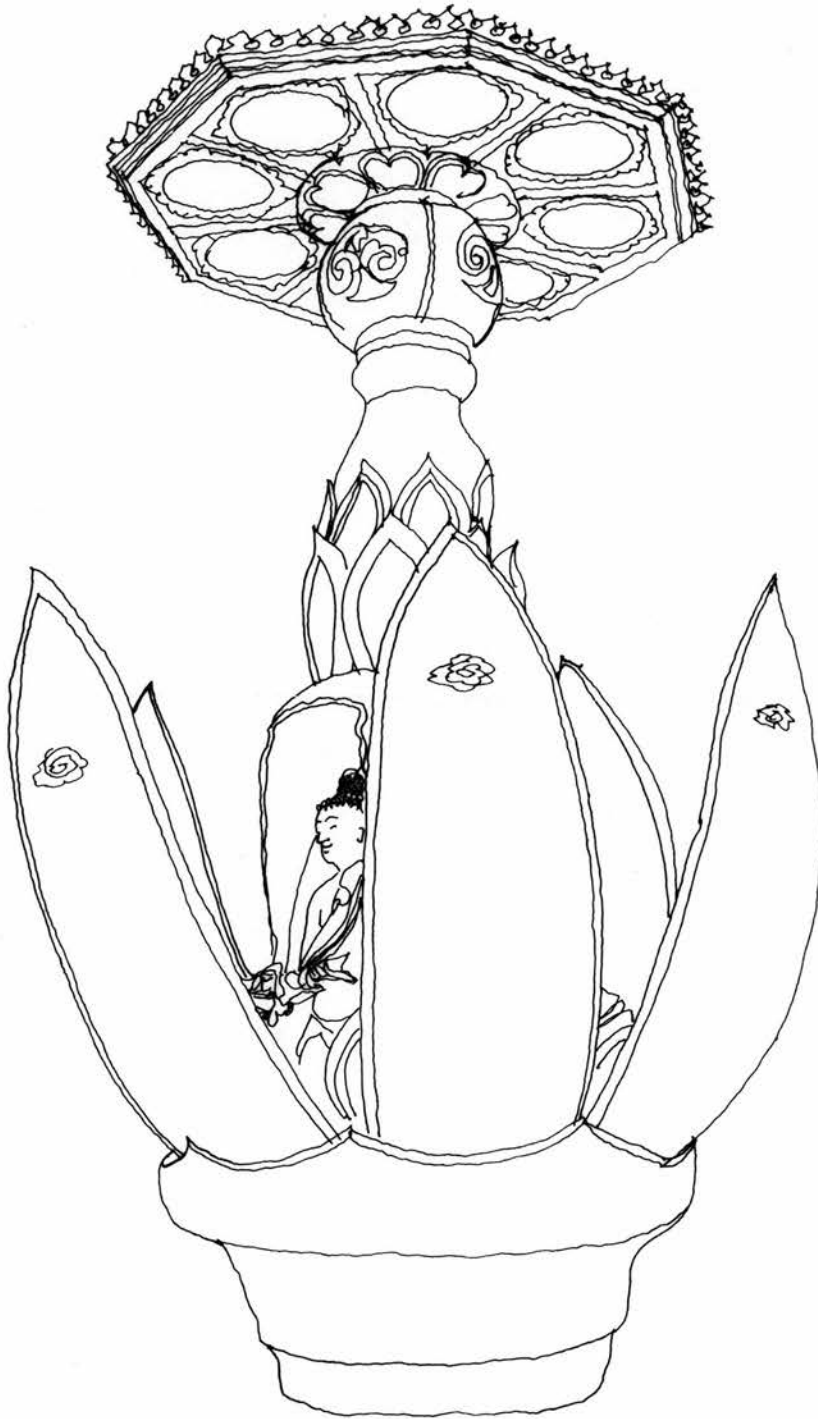


Figure 7.22. A Buddha statue with the lotus design in the *Louhou Monastery* in *Wutai Shan*.

## Natural object designs

In CCA, natural object designs seem more popular than the geometric design. For instance, two natural object designs, cloud and wave motifs, are frequently used in the decoration of the Taihe Dian. A discussion of waves can not be separated from an account of clouds. In the decoration of the Taihe Dian, each dragon or phoenix design is set off by clouds and waves. The main design on the ramp placed between the flights of steps in the Taihe Dian consists of alternate single and paired imperial dragons chasing flaming pearls amongst clouds, with a border design of the classic scroll, and below, rolling waves crashing against rocks, symbolising the earth.

Figure 7.23 shows the geometric designs used in CWA and CCA. Here we find that a great number of geometric designs produced in both are very much alike. Both the Greek and the Chinese fret are formed by the intersection of perpendicular with horizontal lines, but they have not the same regularity, and the meander is more often elongated in the horizontal direction, and they are also most frequently used fragmentally.<sup>137</sup> As with animal and botanical designs in CCA, natural object and geometric designs are based on poetic association, and visual and traditional connections.

## Literary character designs

Literary characters are an important part of decoration in CCA. Similar to that of ancient Egypt, the Chinese character is also a hieroglyph. In the Taihe Dian, there is a large plaque, with three words written by the Emperor *Qienlong* 乾龍, *Tai-He-Dian* 太極殿 on it. It is in the central bay between the two eaves (fig.7.24a). Inside the hall there were two large gilt hanging couplets, by the hands of the *Kang-xi* 康熙 and *Qienlong* 乾龍 emperors, both

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<sup>137</sup> Jones, Owen, *The Grammar of Ornament*, (Studio Editions, London, 1986), p35.



雷纹 河洛陽出土漢碑



繩纹 山東嘉祥武氏祠石刻



齒形纹 山東沂南石刻



S纹 陝西綏德漢墓門楣石刻



三角纹 陝西綏德漢墓門楣石刻

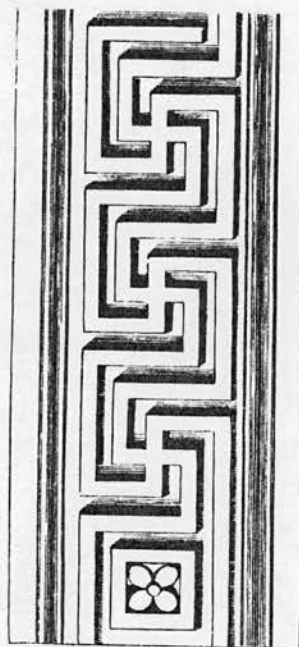


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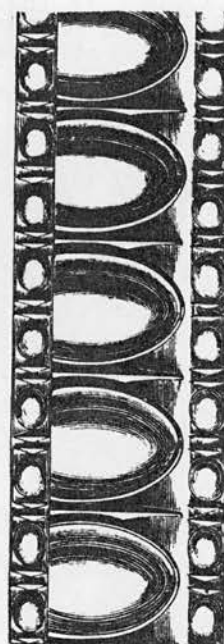


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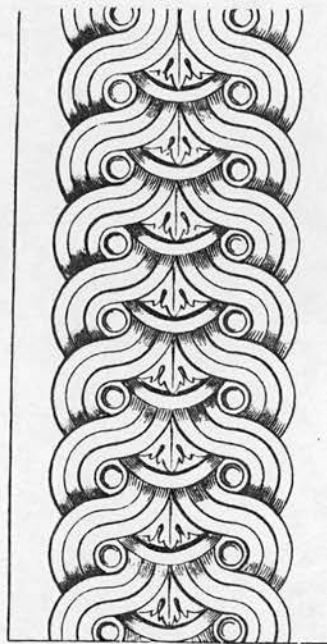
a



Example of Fret or Labyrinth.



Echinus and Astragal. Erechtheum.



P. 46.

Example of Gullioche.

b

Figure 7.23. (a) Natural object designs in CCA in the Han, and (b) in CWA in Greece.



renowned connoisseurs and calligraphers. To use Chinese characters in decoration is a regular practice in CCA.

In some of the main halls of the Forbidden City, calligraphy becomes a major part of the decoration. For example, in the *Jiaotai Dian* 交泰殿 (the Hall of Union) calligraphy by the *Qienlong* 乾龍 emperor concerning the name given to the hall forms the chief decoration in the panel behind the throne. On the two flank columns hang a pair of couplets also by the *Qienlong* 乾龍 emperor. The upper panel contains imperial dragons about a central pearl on which is written the character *shen* 聖 (divine wisdom) with the two larger characters *wu-wei* 無為. This has to do with the philosophical principle of non-interference or 'non-action' in administration.<sup>138</sup> Under the panel is a screen on which is written an emperor's statement 'Inscription of the hall of Union' (fig.7.24b).

To conclude the above discussion, we see that polychrome painted sculpture, relief, painting and ornament are the major methods of decoration in CWA and CCA. The following table lists the stylised decorative treatment in the Parthenon and in the Taihe Dian:

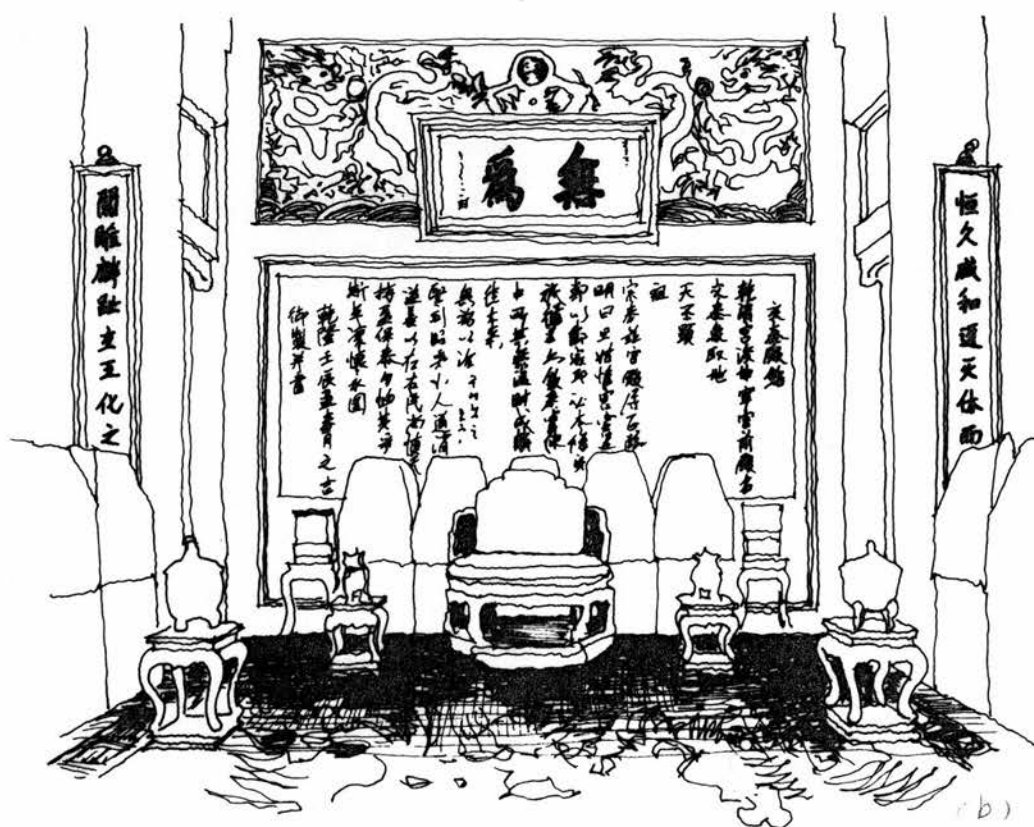
**Parthenon:**

Method	Position	Subjects and contents
Sculpture	Pediments	Athena and her family (Myths and legends)
Relief	Metopes	Greeks fighting with centaurs, and gods fighting with giants (legends)
	Frieze	The procession of the Panathenaic Festival (ceremony)

<sup>138</sup> Yu, Zhuoyun, *Palaces of the Forbidden City* , (transl. Ng Mou-Sang, Chan Sinwai and Puwen Lee), (Viking Press, New York, 1984), p79.



(a)



(b)

Figure 7.24. (a) A large plaque from the Taihe Dian, and (b) interior of the Hall of Union of the Forbidden City (drawn, based on the photos of Yu, Z.Y., 1984).

Ornament	Acroterion	Palmetto design
	Ante fix	Palmetto design
	Water-spout	Lion head design
	Capital	geometric design
	Entablature	Greek fret, and flower pattern
	Cornice	Echinus

**Taihe Dian:**

Method	Treatment	Description
Sculpture	Caisson	A large writhing dragon surrounded by small dragons and phoenixes (legends)
	Throne	Nine dragons form the arm-rest of the throne and stand upon the gilt screen on the dais (legends)
Relief	Throne	A framework of confronting dragons about a pearl
	Terrace	A dragon and a phoenix flying in the clouds carved on the cap of the post of the marble terrace
	Ramp column	Nine dragons in the clouds A coiling dragon decorated on each of six gilt columns
Painting	Beam & ceiling	A framework of confronting dragons about a flaming pearl, and a writhing dragon design

Ornament	Wen	A gaping dragon at each end of the
	(acroterion)	main ridge
	Eaves tile	Writhing dragon design, mythological
	(antefix)	animals and immortals
		Geometric design
		Geometric design and flower pattern
		Geometric design and flower pattern
	Bracket set	Dragon head design
	Partition door	
	Slit window	
	Water-spout	

These are only part of the decoration in the two buildings. In both cases the most important subjects are expressed by the polychrome painted sculptures at an important place, such as on the pediments of the Parthenon and on the caisson of the Taihe Dian. Others are expressed in reliefs, paintings and ornaments .

### 7.4 Decoration and the intention of communication

We have suggested that the Parthenon and the Taihe Dian are Centres. The notion of a Centre is expressed in the high and centred location, the horizontal axis and the centripetal theme. The notion of a Sacred Space is expressed in their closed and ordered interior space. The qualities of the dedicatee are expressed in the treatment of the exterior form and its refinement. The myths, legends, sacrifices and celebratory processions are expressed in the sculptures, reliefs and polychrome paintings. The cosmogonic significance of the Centre is that all creation takes place or begins at a centre. The sacred enclosure is the house of a god; a place where, because of its position in the cosmic order, and because of the rituals that sanctify it, a deity can be at home; and where, as Centre and

'high place', man can meet his god.<sup>139</sup> In the interior spaces in both CWA and CCA, the Sacred Spaces, communication is possible between this world and the other worlds, from the heights or from the depths, from the world of the gods or the world of the dead, and between the three regions, of heaven, earth and hell:

And then soon enough the image of the three cosmic zones is imposed, generally: Heaven, Earth, Under-world; and the communication between these three zones implies a break in the levels. In other words, the sacred space of the temple makes possible the passage from one level to another; and first and foremost, the passage from Earth to Heaven. Let us note that communication between the cosmic planes also comprises a rupture of the ontological order: the passage from one mode of being to another, the passage from a profane state to a sacred state, or from Life to Death.<sup>140</sup>

For the purpose of communicating with the other worlds, rituals and ceremonies took place in classical buildings. Ceremonial music, dancing, commemorations, declarations, and speeches were performed against the background of a familiar treatment of space, form and decoration. This ritual or ceremony was devised for Communication. The rulers, the priests and heroes, stood upon the axis where the door of heaven is found and led the ritual and ceremony to establish Communication with heaven.

Architectural decorations, sculptures, reliefs, paintings and ornaments play a part in Communication. Looking at the Parthenon, several themes, such as the glorification of Athens through her goddess Athena, the successes of the Greeks against barbarian Persians, and the war between the Athenians and their enemies - the glory and grief of the nation - were represented in the decorations. The procession of the Panathenaic Festival of the goddess, the sacrificial animals, plants and flowers, were also illustrated. The subjects used in the decoration of the Taihe Dian are completely different from those used in the

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<sup>139</sup> Eliade, Mircea, *Symbolism, the Sacred, and the Arts*, (edited by Diane Apostolos-Cappadona), (Crossroad, New York, 1986), p10.

<sup>140</sup> Ibid.

Parthenon; but the myths and legends which are symbolised by the dragons and other sacred animals or creatures are represented just as surely.

In the temples and palaces of both CWA and CCA, the Sacred Space constitutes itself following a rupture of levels which makes possible Communication with the trans-world, and the transcendent realities. "Whence the enormous importance of Sacred Space in the life of all peoples: because it is in such a space that man is able to communicate with the other world, the world of divine beings or ancestors."<sup>141</sup> For people in an ancient or traditional society, everything become expressible. In some ways, decoration is the same as ceremonial music, dancing, commemorations, declarations and speeches, for all express the same theme or subject. The difference is that the decoration on the temples or palaces is static. In it people narrate and portray myths, legends and celebrations. For us, the decorations of the Parthenon and the Taihe Dian are great artistic works created by the ancients, but for their builders they were a means of Communication.

## 7.5 Conclusion

There are two sorts of decoration in CWA and CCA. One is the purely decorative and includes architectural sculpture, reliefs, paintings and ornaments. The other sort of decoration is part of the construction and comprises roof tiles, capitals and motifs on the windows and doorways. In Greek temples and in the buildings of CCA, decoration was developed from elements of the structure, such as the capitals and columns; or from protective agents, such as the ceramic ante-fixes and paint used as preservatives against decay. The builders of the Parthenon and of the Taihe Dian skilfully used those architectural elements, such as roof tiles, capitals, windows and doors as part of the decoration.

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<sup>141</sup> Ibid.



However, all decorative elements in the two buildings are associated with an expressive purpose.

In the Parthenon Athena and her family is a major theme represented in the polychrome painted sculpture on the pediments. The legend of the birth of Athena was illustrated by a group of sculptures on the eastern pediment, and by the fight between Athena and Poseidon for Attica displayed on the western pediment. Both show the oldest legends about the Acropolis and Athens. Gods and mortals are represented in the polychrome painted relief on the metopes which show Greeks fighting Persians, Amazons, centaurs, Trojans, and giants. It illustrates the legend of the wars between Greeks and barbarians. Finally, the great Panathenaic Festival is depicted in the polychrome painted reliefs on the frieze. In the Taihe Dian, myths, legends and sacrifices are represented by various symbolic images, such as the dragon and the phoenix. There are three main themes displayed in the polychrome painted sculptures, reliefs and paintings in the hall: a writhing dragon with phoenixes, two dragons fighting about a flaming pearl, and nine-dragons. A writhing dragon with phoenixes, occupying the centre of the caisson, and all the decorations on the horizontal axis are of nine-dragons design. There are four main sorts of ornament - animal, botanical, natural object and geometric designs - used in the two buildings.

The selected subjects and the contents represented in the decoration of the Parthenon and of the Taihe Dian are associated with an intention to communicate. As with the rituals, ceremonies and celebrations held in both buildings, the decorations play an important role in communication with the world of divine beings and ancestors; and also in communication between the three regions of heaven, earth and hell. The sculptures, reliefs, polychrome paintings and ornaments have to do with symbolising communication with other worlds. As was the case with ceremonial music, dancing, commemorations, declarations, and speeches, the reason behind the decoration was the wish to communicate; for the buildings were not only structures, but also centres, sacred spaces and cult images.

# CONCLUSION

## **The relationship of architectural treatment with the cosmos**

We have compared two types of classical architecture by making a detailed comparison of two buildings, the Parthenon and the Taihe Dian. An analysis of the evidence - the details of the two buildings - supports a number of hypotheses applied to both buildings, and by extension, to both CWA and CCA.

The development of CWA and of CCA, as shown in Chapter I, was composed of two major processes. The first phase was marked by the formation of a basic form. The basic vocabulary and grammar of the classical language of architecture was developed during this phase. The three column-styles in Greek temple architecture and the five roof-styles in CCA, were standardised and stylised in their spatial context, form and decoration. The stylised three-bay building - the basic form of a classical building - appeared in the early sixth century BC in Greece; and in CCA at the time of the *Eastern Zhou* (770-256 BC). The second phase was marked by the application of refinement in Greek temple architecture in the fifth century BC, and in CCA at the time of the *Tang dynasty* (618-907) and the *Song dynasty* (960-1279). The development of CWA and of CCA went hand-in-hand with the development of a civilisation. Greek temple architecture arrived at maturity when Hellenic civilisation took shape and it approached perfection when the civilisation was at its peak. Similarly, CCA arrived at maturity when Chinese civilisation took shape and it approached perfection during the peak of civilisation.

There are three major common characteristics in Greek temple architecture and CCA: independence, the basic form, and the use of Orders. In both cases, the individual building is without relation to other buildings; is a complete unit in form; and plays a separate role in the complex. There is a basic form which is a three-bay prostyle building, with a closed interior space. Most of the important features of classical architecture are found in this basic form. Finally, there are three different column-styles in Greek temple architecture: Doric, Ionic and Corinthian; and five different roof-styles in CCA: *Wudian* 廡殿 (hip roof), *Xieshan* 歇山 (hip and gable roof), *Xuanshan* 懸山 (overhanging gable roof), *Yingshan* 硬山 (gable roof) and *Cuanjian* 攢尖 (conical roof). The three column-styles in Greek temple architecture and the five roof-styles in CCA work as Orders which express different aesthetic tastes.

The two buildings, the Doric Parthenon and the hip roof hall (*Wudian* 廡殿) Taihe Dian, are chosen as two outstanding exemplars. The Parthenon was built in the middle of the fifth century BC, and the Taihe Dian was built eighteen centuries later. The historical and cultural contexts of the two buildings were very different. Athens, during the time of the building of the Parthenon, was a leading Greek state. Male citizens participated in the government of the city, called the 'polis', and of the deme, the administrative unit of local government. The temple and the Acropolis were a setting for the festivals which were the focus of political culture. Rituals and celebrations were held on the Acropolis and sacrifices were made for the favour of the goddess Athena. In contrast, *Ming* China was a united empire. The Taihe Dian, with the Forbidden City, was built as a royal palace, as well as an administrative centre of the country. Rituals and celebrations were held in the palace for establishing harmony between Heaven and Earth. However, the Parthenon and the Taihe Dian were built for both political and religious reasons. Their dedicatees, Athena and the *Ming* Emperor, were the heart and spirit of the whole population.

There are many similarities in the treatment of space, form and decoration in the Parthenon and the Taihe Dian. First of all, both the Parthenon and the Taihe Dian have a high and central location, a horizontal axis, and a centripetal theme in the treatment of

space, form and decoration. Their interior spaces are enclosed and cuboid; the exterior form of both buildings is divided into front, flanks and rear; and the elevations are subdivided into three parts horizontally: roof, colonnade and wall, and platform. The inclinations, curvature and proportions of the elements of the exterior form of the two buildings distinguish them from others. Refinement is seen in the entasis and tapering of the columns and the walls, which incline inwards and upwards. The Parthenon's horizontal stylobate, architraves, and cornices sag slightly in the middle and have convex outlines, and the Taihe Dian's horizontal lines of the long curved eaves and architrave droop in the middle and turn upwards and outwards at each corner. Finally, myths, legends and sacrifices are represented in the polychrome painted sculptures, reliefs and ornaments in the two buildings. The similarities of architectural treatment found in the Parthenon and in the Taihe Dian offer us an opportunity to examine the meaning of the treatment of space, form and decoration in both CWA and CCA.

The similarities found in the treatment of the Parthenon and of the Taihe Dian also show that the two types of classical architecture have certain properties, functions and meanings which are independent of any one civilisation. Mircea Eliade's claims about the ideas of a Centre and a Sacred Space are introduced in Chapters III & IV as a basis for comparing the Parthenon and the Taihe Dian. According to Eliade, architecture in certain ancient societies fulfils a symbolic function which in its essentials is independent of any particular society or culture. A cosmos, an order, has to be created. The notions of the Centre, the Sacred Space, the four quarters, the axis mundi, and 'cosmosization' are connected with the ritual harmonisation of Heaven and Earth, and with the treatment of space, form and decoration in the buildings. Through an exploration of the relation between architectural treatment and cosmosization, we find the following:



**A high and central location signifies that the building is situated on the summit of the cosmic mountain and at the centre of the world (Chapter III)**

The location of the Parthenon is centred, and is on the top of the sacred hill. This signifies that it, the Centre, is situated on the summit of the Cosmic Mountain and at the centre of the world. Similarly, the Taihe Dian rests upon a three-tiered terrace and is located at the centre of the palace and the city. It means that the great hall is situated upon the highest and the most central place in the world. The fact that the buildings are placed upon a high terrace or platform, and are situated at the centre of a complex and a city implies that they are Centres.

The Sacred Mountain, in shape like a real mountain, is situated where heaven and earth meet at the centre of the world. The Parthenon was built at the top of a hill which was recognised as a Sacred Mountain. Standing upon the hill or the three-tiered terrace meant standing on the summit of the Sacred Mountain. Both buildings are regarded as Sacred Mountains, and Centres. The high and central location shows that both the buildings are Centres in their own cultural worlds.

In both the Parthenon and the Taihe Dian doorways and ladders are placed upon the axis. Led by the axis one climbs the steps and approaches the buildings. This means that one climbs up towards the summit of the cosmic mountain and towards the centre of the world. In the Parthenon, the celebration of the great Panathenaic Festival begins at the bottom of the sacred hill. Then the people climb up the hill, go through the gate-house, the Propylaea, and finally approach the eastern cella of the Parthenon. The journey towards the temple means the journey towards the Centre. Similarly, to approach the Taihe Dian, one must go through many gate-houses and climb up many ladders. The experience of approaching the two buildings is the experience of approaching a Centre.

## **A horizontal axis signifies the way towards the Centre**

### **(Chapter III)**

In both the Parthenon and the Taihe Dian the horizontal axis is formed by symmetrical spaces and forms. In the Parthenon, it runs through the centre of the two interior spaces, the eastern cella and the western chamber; and all the important parts of the temple - the cult statue of Athena and the door-ways - are placed upon the axis. In the Taihe Dian, a horizontal axis goes through the centre of the hall; and all its important parts - the throne, the dragon caisson, and the main entrances of the hall - are placed on it. In the case of the Taihe Dian the horizontal axis is also formed by a series of spatial sequences. All the important halls and courtyards in the palace city stand upon the axis, for standing upon the axis means that they are on the line to the centre of the world. Following the large steps on the horizontal axis, one climbs the hill, the terrace and platform, passes a series of gate-houses, and eventually arrives at the interior of the building, and at the centre of the world.

## **The centripetal theme in the treatment of space, form and decoration signifies the centripetality of the Centre (Chapter III)**

In the eastern cella of the Parthenon, the galleries encircle the central space of the cella, and face towards the cult statue. Standing at the centre of the cella, and on the axis of the hall, one can see that spaces, forms and decorations tend to converge here. Corresponding with this, the treatment of space, form and decoration on the exterior of the hall shows radiation from the centre of the building, with the galleries, columns, porticoes and decorations all radiating outwards. In the Taihe Dian the treatment of the interior is centripetal, with the spaces, forms and decorations all facing inwards towards the centre where the emperor is seated on the throne. On the exterior, the spaces, forms and decorations all radiate outwards from the centre of the hall; the rafters under the eaves



radiate from the centre outwards; and the cylindrical tiles and crescent-moon-shaped gutters radiate downwards in all directions from the main ridge. The arrangement of the front courtyard of the Taihe Dian is also centripetal, with the galleries, gate-houses and halls all facing the centre of the courtyard. In CCA, the idea of the Centre was also emphasised by large-scale compositions which included the courtyard, the complex and the city.

#### **An enclosed and ordered interior space expresses the notion of a Sacred Space (Chapter IV)**

The essential characteristics of the interior space in the Parthenon and in the Taihe Dian are similar. The interior space in both buildings is an enclosed and ordered space, a cuboid space encircled by thick walls and a big roof. The walls mark out the four orientations, and the cult-statue or the throne is placed on the horizontal axis facing the entrance. The most important orientation is indicated by the doorway and the portico. The ambulatory surrounding the interior space works as a transitional space between the interior and the exterior.

The enclosed and cuboid space in both the Parthenon and the Taihe Dian imply that the interior space is a Sacred Space. It is a territory of gods and ancestors, entirely different from the surrounding cosmic environment, and separated from the profane. The Sacred is that which is not the profane. The Sacred Space and the profane are two different worlds. The cella of the Parthenon is an enclosed and cuboid space, where the cult statue of the goddess was placed, and the sacrifices were displayed. The interior space of the Taihe Dian is also an enclosed and cuboid space, where the emperors sat on the throne, rituals and ceremonies were held, and edicts were proclaimed. To build a temple or a palace, in both CWA and CCA, means at the same time to establish a Sacred Space. The rituals and ceremonies were held at the Centre and in the Sacred Space. In there myths, legends and

celebrations were illustrated in the decorations, and communication with other worlds, the worlds of divines and ancestors, became possible.

**The exterior form and its refinement represent certain qualities of the dedicatee (Chapter V&VI)**

The variations in the inclination, curvature and proportions of the elements of the exterior form of the Parthenon and of the Taihe Dian produce a unique appearance. The individuality of the two buildings is a result of subtle treatment of the exterior form, which is associated with the cult image of the dedicatee. The variations in the elevations of classical buildings are associated with representation of certain qualities of the dedicatee. In the Parthenon, the massive structure, the inclination of the pediment, the curvature of the echinus and the proportions of the column and of the intercolumniation produce a certain effect which expresses some of the qualities of the goddess. In the Taihe Dian, the massive structure, the inclination and curvature of the roof, the proportions of the columns and of the intercolumniation, and the shapes of the bracket-sets express certain qualities of the emperor.

In Greek temples refinement is seen mainly in the entasis and tapering of columns, and in CCA it is chiefly used on the roof, columns and walls. Together with variations of the inclination, curvature and proportions of the exterior, the different refinements in the two buildings produce a variety of effects. This is the result of an aesthetic intention. The practice of refinement is closely connected with an expressive purpose. As well as the expressive use of mass, inclination, curvature and the proportions of the elements of the exterior form, subtle detail of architectural treatment, in slightly curved horizontal lines, entasis and tapering of the columns, and inclination inwards and upwards of the columns and walls portray facets of the character of the dedicatee.

**Polychrome painted sculptures, reliefs and ornaments illustrate myths, legends, sacrifices and the ceremonial procession (Chapter VII)**

Decorations in the Parthenon and the Taihe Dian are associated with an expressive purpose. In the Parthenon the legend of the birth of Athena was illustrated by a group of sculptures on the eastern pediment, and the fight between Athena and Poseidon for Attica was displayed on the western pediment. Gods and mortals are represented in the polychrome painted metope reliefs which show Greeks fighting Persians, Amazons, centaurs, Trojans, and giants. The great Panathenaic Festival is depicted in the polychrome painted reliefs on the frieze. In the Taihe Dian, myths, legends and sacrifices are represented by various symbolic images, such as the dragon and the phoenix. Three main themes are displayed in the polychrome painted sculptures, reliefs and paintings in the hall: a writhing dragon with phoenixes, two dragons fighting about a flaming pearl, and nine-dragons. There are four main sorts of ornament - animal, botanical, natural object and geometric designs - used in the two buildings.

The decoration of the Parthenon and of the Taihe Dian is associated with an intention to communicate. In addition to the rituals, ceremonies and celebrations held in both buildings, decorations play an important role in communication with the world of divine beings and ancestors, and in the communication between heaven, earth and hell. The buildings were not only structures, but also centres, sacred spaces and cult images.

By comparing the treatment of space, form and decoration in the Parthenon and in the Taihe Dian, we find that each has its own role in the expressive function. This diagram shows that each architectural member has to do with 'cosmosization':

Cosmos	construction
A Centre	Central and high location Axis Centripetal theme
A Sacred Space	Enclosed and ordered interior space
A cult image of dedicatee	A refined exterior form
Myths, legends, sacrifices and celebratory processions	Sculpture Relief Painting

The relationship between the cosmos and architecture was a key factor in the outlook of those engaged in the treatment of space, form and decoration in CWA and CCA. The creation of space, form and decoration in classical architecture is embodied in a cosmic context. This offers us a key to their origin and meaning.

**Two types of classical architecture display a number of common features despite the differences in the civilisations which produced them. The Parthenon and the Taihe Dian had a cosmic context.**

A comparison between CWA and CCA, concentrating on an analysis of the details of the Parthenon and of the Taihe Dian, shows that the two types of classical architecture display a number of common features despite the differences in the civilisations from which they emerged. For instance, the three column-styles in Greek temple architecture, and the five roof-styles in CCA (Chapter I) express different aesthetic tastes. Both of them subdivide the form of the buildings into different styles. Serlio explained that the ancient dramatists used

to preface their plays with a prologue telling audiences what it was going to be about. The roof-styles in CCA and the column-styles in CWA are these prologues. They introduce the temple and the palace to the viewer or user.

The basic form - a three-bay prostyle building - is another important feature common to CWA and CCA. The three-bay prostyle building embodies some features of classical buildings, such as axial symmetry and enclosed and ordered interior space. Greek temples - big or small, prostyle or peripteral, Doric or Ionic - are all derived from a basic form. Similarly, the buildings in CCA are all derived from a basic form. Independence is a common feature and shows that the building is a complete architectural unit.

There are many architectural features common to the Parthenon and the Taihe Dian. Both have a high and centred location, a horizontal axis, a centripetal theme, an enclosed and ordered interior space with an altar or throne on the horizontal axis; elevations divided into three-parts horizontally; and polychrome painted sculptures and reliefs as their main decoration. The same principles of axial symmetry, balance, proportion, radiation, centripetality and harmony are seen in the arrangement of the space, form and decoration in both buildings.

These common features in CWA and CCA, and similarities in the architecture of the Parthenon and of the Taihe Dian are surprising in view of their very different cultural backgrounds. To explain this, Eliade expounds the idea of the Centre and the Sacred Space, which is common to ancient Greek and Chinese society, and explains the extent to which the Parthenon and the Taihe Dian were both expressions of cosmic context.

Traditionally, most scholars concentrated on the techniques and materials of classical buildings, but not on the origin and meaning of their architectural treatment. In his treatise, Vitruvius recorded building methods and techniques of CWA in Rome, and he also suggested the origins of the Orders. Fourteen hundred years after Vitruvius, Leone Battista, Alberti formulated the characteristics of the Orders in CWA. Then, Sebastiano Serlio in 1537, Vignolo in 1562, Palladio in 1570 and Scamozzi in 1615 published their



books about the principles of CWA. The great contribution by these theorists was the discovery of ancient architectural vocabulary and grammar.

In China the oldest book to state the principles of CCA is the book *Kaogong Ji* 考工記 written during the early fifth century BC. It gives the ideas behind the building and city planning of the *Zhou* 周 cities, and sets out important principles of construction, such as that the palace should be located at the centre of the city, and that the market places were to be situated behind the palace. But it does not tell us why. Two other important books dominated two epochs of building activities in China: the *Yingzao Fashi* 營造法式 (Building Standards of the *Song*) and the *Gongcheng Zuofa Zeli* 工程作法則例 (Structural Regulations of the *Qing*). Both government manuals deal with the technological and material aspects of CCA, but not with the origin and meaning of the architectural treatments.

Only in very recent times has the relationship between architecture and the cosmos been found to be a key to the meaning and origin of classical buildings. The 'traditional cosmos' has been recognised as an important idea behind architectural treatment. The results of this observation were presented in a coherent fashion by Eliade. In his *the Myth of the Eternal Return* the architectural symbolism of the Centre is formulated (Chapter III). It reveals that there was a cosmic function in the building of temples or palaces in traditional societies, such as those of ancient Egypt, India and China. Every city, temple or palace in such a tradition was recognised as a Centre, situated on the summit of the Cosmic Mountain and at the centre of the world. The buildings or the cities were an imperfect copy of the Cosmic Tree, the exemplary archetype. The notion of a Centre, postulated by Eliade, gives an explanation as to why high and centred location, a horizontal axis and a centripetal theme are used in the Parthenon and in the Taihe Dian.

Eliade's idea of the Sacred Space has been used to explore the meaning of the interior space of the Parthenon and of the Taihe Dian. In his *The Sacred and the Profane* he argues that a Sacred Space is separated from profane space, and that it is ordered. This gives an explanation as to why the interior space in the two buildings is arranged as an enclosed and



cuboid space, without windows in the walls; and as to why the four directions are marked by the walls (Chapter IV).

We must acknowledge here that in his works Eliade was speaking of traditional societies in Oriental civilisations and in the Indo-European world. As is well-known, Chinese architecture has a long history of producing centred and cosmosized cities and buildings. The ceremonial role of the Emperor and the rituals he had to perform with such precision were aimed at maintaining the harmony of Heaven and Earth. Our knowledge that this was so rests on historical investigation and on a study of extant architectural remains. But this has not happened with CWA. Documentary evidence showing that Greek temple architecture had a cosmic context is less easy to find. In the case of the Parthenon, for example, it has been difficult to find any document to support the hypothesis that the notions of a Centre and a Sacred Space are expressed in the treatment of the temple. We have had to rely on analysis of the architectural remains. But the similarities in the architectural treatment of the Parthenon and of the Taihe Dian may offer evidence that similar significance is to be attached to both buildings.

According to the traditional view in the West, Greek religion and architecture do not focus on cosmology, but this does not mean that they cannot be interpreted as doing so. However, it is clear that more information and documentary evidence is needed.

Another hypothesis suggested by this study is that certain qualities of the dedicatee are expressed in the exterior form and its refinement; and that, to put it another way, the same things are expressed in both the cult image of the dedicatee and in the exterior form of the classical building. The exterior form of the Parthenon and of the Taihe Dian is an architectural body of the dedicatee. On this view, we can explain why certain inclinations, curvatures and proportions have been used in the two buildings (Chapter V).

Since Vitruvius's time, the application of refinement has been thought to have been used for technical reasons. Vitruvius explained that it can help to counteract optical illusions. However, we suggest that variations in the inclination, curvature and proportion of

the exterior form, and different refinements were used to produce a likeness. They embody certain qualities of the dedicatee (Chapter VI). Refinement in both CWA and CCA is the result of an expressive intention.

The hypothesis that subjects represented in the decoration in the Parthenon and in the Taihe Dian are associated with a wish to communicate with the other world, the world of divine beings and ancestors, gives an interpretation of the sculptures, reliefs and ornaments used in the two buildings, and an explanation of why these subjects were chosen. The study also point out that the decorations are on buildings which are recognised as being Centres and Sacred Spaces. The ceremonial music, dancing, commemorations, declamations, speeches, sculptures, reliefs and ornaments all play a role in communication.

Subjects used in the polychrome painted sculptures, reliefs and ornaments in both the Parthenon and the Taihe Dian can be understood directly by reference to written history. However, the hypothesis that certain qualities of the dedicatee are expressed in the refined exterior forms of the two buildings is less easy to decide about, for much depends on personal observation and understanding of the language of architecture. Vitruvius concluded that the Doric temple represents male muscularity, and that the Ionic shows female elegance. This was his personal feeling about it. The two major roof-styles in CCA, the *Wudian* 廡殿 (hip roof) and *Xieshan* 歇山 (hip and gable roof), represent two different aesthetic tastes. A strong, rough genius is represented in the simple outline and massive proportions of the *Wudian* 廡殿. Very different is the *Xieshan* 歇山's elegance and richness of outline and decoration. Many questions could be answered by examining exterior forms in both CWA and CCA, with this hypothesis in mind.

**The hypotheses put forward in this study provide a new view-point from which to explore the origin and meaning of the treatment of space, form and decoration in classical buildings.**

These hypotheses, based on a comparative study of the Parthenon and the Taihe Dian, give an explanation as to how and why those remarkable architectural spaces, forms and decorations were created. However, they are only a starting point for further research. We must also recognise that the two buildings can not represent every aspect of the two types of classical architecture. Much research still needs to be done.

Nowadays we no longer build Greek temples or Chinese palaces, for we no longer live in the old cosmos and society. Modern architecture is a product of modern thinking and society. However, certain qualities found in classical buildings, such as order, symmetry, balance, radiation, proportion and harmony, are still important in the eyes of in modern society.

Over two millennia CWA and CCA not only produced countless masterpieces, but also developed rules to be observed in the practice of architecture. This is an important legacy .

A number of questions which have arisen in the comparative study may be a basis for further research on the same theme. First of all, the independent building in CWA disappeared gradually after its flourishing in ancient Greece, and was replaced by large buildings composed of many interior spaces and courtyards. But in CCA independence remained as a major characteristic until the end of the nineteenth century. The basic form and its function in architectural expression is also an interesting question. In Roman times and during the Renaissance, it was retained as a symbolic element of the elevation, such as a portico or a window. But this was not the case in CCA. The meaning of the Orders is always an interesting question. The reason for the use of the Orders may be understood better by comparing them with other classical arts, such as classical drama in Greece and in China. The relationship between the exterior form and the qualities of the dedicatee is also an important

question which has to do with the reason for creating a particular architectural form. Finally, there is the use of decoration, and its function in communication, to be more fully explored.

Our comparison shows that the very different civilisations that evolved these two types of classical architecture produced buildings that share some very important features. The use of this comparative approach does indeed shed new light on these buildings; and thus upon the nature, intentions and content of classical architecture.

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